

POPULAR

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# Computing WEEKLY

13 - 19 June 1985

*It's the best selling weekly*

Vol 4 No 24



DOMARK, which launched its *A View To A Kill* game based on stunts used in the new James Bond film of the same name last week (pictured above), is rumoured to be in negotiations to develop a game on *Biggles*, a film due out this Christmas, featuring Captain W E Johns' famous air ace, immortalised in over fifty novels.

Domark's marketing manager Rory Curran however denied that any *Biggles* game was planned.

## Amiga's arrival pressures Atari

COMMODORE looks set to launch its Amiga computer - a rival for Atari's ST and Apple's Macintosh - on July 18, in the US.

The machine includes a built-in monitor and single disc drive, and will sell for \$1995 (around £1540).

Following last week's Consumer Electronics Show in Chicago, more details of the machine's design have emerged. The 68000 processor-based micro offers 256K

Ram expandable with a Ram pack to 512K. A 192K Rom includes a mouse-operated windows/icons operating system which Commodore calls 'intuition' and a disc operating system, Amiga-DOS. The machine also includes three custom chips handling animation (Agnus), graphics (Daphne) and sound (Portia).

Graphics display offers either a 60 or 80 column text display, hardware sprites, up

to 4096 colours, and its 32K screen offers a range of display resolutions (with different numbers of colours possible) from 320 x 200 pixels up to 640 x 400 pixels.

The sound chip gives four sound channels (or twin stereo tracks) over nine octaves. The chip also handles disc and joystick input/output.

As well as the built-in 3½ inch double-sided double-

continued on page 4 ►

## Amstrad goes for US 128K

AMSTRAD has launched a 128K version of its disc-based CPC 684 at the Summer Consumer Electronics Show held in Chicago last week. The

new model is intended for sale in the US this autumn.

Like both Amstrad's previous machines, the CPC 6128 - as it is called - is being offered together with a choice of either mono-

chrome or colour monitors. The green screen version will cost \$699 (around £540) and the colour version will cost \$799 (around £620).

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ZAP!

Arcade Special  
Feature Issue

INSIDE

INFINITE GUIDE TO INFINITE LIVES - BEGINS P12

ZAP!



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# elite



**S**inclair's troubles continue. Hardly a day goes by without further articles adding fuel to rumours of financial instability at Britain's top micro company.

Considering that Sinclair is currently carrying somewhere around £30m of unsold stock, it is hardly surprising that the strain is beginning to show. Further, with home micro sales significantly reduced across the board, Sinclair still has now to find money to buy the components it will need to manufacture its models to be sold this Christmas.

Now it would be easy - as many have - to write Sinclair off as a spent force. But that would be to seriously underestimate the strength of Sinclair and indeed the strength of Sir Clive.

Despite the unexpectedly vicious down-turn in post-Christmas sales the company is still holding on to its approximately 40 per cent share of the market.

Sinclair is astonishingly good at spotting emerging consumer areas and exploiting them before anyone else. Yet he does so within the constraints of entirely conventional (and so less capital intensive) technologies. Somehow he always manages to find 'windows' of opportunity that others miss.

Some, like the Spectrum, have been wildly successful and so tremendously profitable.

Admittedly others are too risky to be successful, like the C5. Some are brilliantly conceived, but go off half-cocked, like the QL. And some grasp success from the jaws of disaster, like the flat screen TV, which now finally looks like coming good.

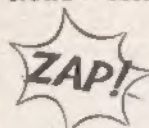
Sinclair has always walked a difficult tightrope. But he has proved himself a survivor.

# POPULAR Computing WEEKLY

Vol 4 No 24

## Presents . . .

**News > More Chicago Show news**



**Joystick Review > A two page summary of the slickest and quickest available**



**Arcade Addicts Guide > Four packed in pages of pokes and tips for virtually any game you've ever played!**



**Star Game > A high speed machine code version of the classic race 'n' chase strategy game**

**Software Reviews > Latest software from the musical mayhem of Ghetto Blaster on the Commodore to the intricacies of ADA**

**Spectrum > Keep track of your shares**

**QL Page > Examine the QL memory with this function key based utility**

**Commodore 64 > Create synthesized sound and see it displayed as bar charts with this sophisticated utility**

**Amstrad > A program to let you create programmable function keys on the Amstrad**

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## Futures . . .

**C128 reviewed. . . check your chess grade on the Commodore 64. . . machine code strategy board game on the Spectrum**

**Editor** David Kelly **News editor** Christina Erskine **Features editor** Graham Taylor **Software editor** John Cook **Staff writer** Martin Croft **Production editor** Lynne Constable **Editorial secretary** Lucinda Lee **Advertisement manager** David Lake **Assistant advertisement manager** Jeremy Kille **Advertisement Executive** Diane Holyoak **Classified executive** David Osen **Administration** Geraldine Smyth **Managing editor** Duncan Scot **Publishing director** Jenny Ireland. **Published by** Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP. Tel 01-437 4343 Telex 296275 **Typeset by** Publishers Reprographics Services Ltd, 4 Roger Street, London WC1. **Printed by** Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. **Distributed by** S M Distribution, London SW6, Tel 01-274 5611, Telex 261643 © Sunshine Publications Ltd 1985.

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Computer Trade Association Magazine of the Year



# Oric bought by French company

ORIC Products International has finally been bought from the receiver by Eureka Informatique, a French distribution company.

Eureka Informatique - which was formerly known as SPID - has acquired all rights to all names, products and current stocks. The company will be restarting production of the Oric Atmos and Stratos machines in its newly purchased factory in Normandy,

France. The offices in Cambridge, previously occupied by Oric, are to be sold off independently.

Before it crashed, Oric was also working on an IBM compatible machine and a portable model. "A substantial part of the technology relating to these machines is available to Eureka," said Cameron MacSweeney, a consultant who handled the negotiations between Eureka and the receiver,

Dennis Cross of Chater and Myhill. "I do not, know, however, if work will now continue on them - I suspect it is unlikely."

He added that Eureka had no plans to set up a manufacturing facility in the UK, although prior to the purchase, discussions had been held with Barry Muncaster of Oric Products Export, with a regard to making the machines available in this country.

## Amiga hits Atari ST

◀ continued from page 1

density drive - with a formatted capacity of 880K - the machine includes a detachable 89-key keyboard, two-button mouse (configured for one joystick port), twin joystick ports, supplementary disc, Centronics parallel, RS2320C serial and Ram expansion interfaces and stereo audio, domestic TV and RGB monitor outputs.

The machine's sophisticated intuition operating system offers special facilities for multi-tasking, window handling and animation.

Commodore also plans to offer - to complement the machine - a range of printers, additional disc units (both 3½ inch and 5¼ inch), a 1200 baud modem, hard disc unit (up to 8M), a video controller package including a genlock interface and frame grabber, and a Midi music interface.

Commodore views the Amiga machine as a very significant launch for the company and is aiming it at a broad spectrum of applications in the entertainment, education and home business areas.

A UK launch is expected early next year. "It will not be announced before January," said Commodore UK's general manager Nick Bessey. "But I would put money on an announcement in January."

## Amstrad goes for US 128K

◀ continued from page 1

The machine is Z80-based and the 128K Ram capacity is achieved by bank-switching two 64K Ram blocks. The CPC 6128 includes a built-in 3 inch disc drive and is upwardly software compatible with the CPC 464 and 864.

The machine is being distributed in America by a new Chicago-based distributor, Indescomp Inc, with Amstrad acting purely as manufacturer. Indescomp Inc was set up in January this year by Indescomp SA, Amstrad's Madrid-based Spanish computer distributor.

"Amstrad is not financially involved in the project in any way," said Amstrad's William Poel.

It is not clear whether the CPC 6128 will be launched in the UK. "The 6128 is being displayed for the benefit of the US market. We had to launch at CES in order to take machines into the shops in the autumn".

"It has somewhat perverted Amstrad's usual principle of not showing anything until it's ready," William Poel continued.

Alan Sugar, Amstrad's chairman, said that the 6128 was more likely to come to Britain early next year, as there was no need to add to Amstrad's range at the present time.

The CPC 6128 will initially be sold in the US through a deal with retail giant Sears Roebuck.

## Space robots kit crosses Atlantic

TOY MANUFACTURER Milton Bradley has launched a new range of motorised construction kits, which can be made into various vehicles, and which should soon be

capable of being interfaced with a home micro.

The company is stressing the educational potential - schools in Wales have been experimenting interfacing the models with BBC Bs via a control box, using them much in the same way as turtles.

Milton Bradley has no plans to launch its own interface, but is considering applications for licences from a number of UK companies.

There are three major sets at present, plus an expansion set. The price ranges from around £20 for the expansion set, to between £80 and £80 for the largest set.



## Hopes of Sinclair progress hindered by accounts delay

A MEETING of Sinclair's major creditors was held last week, at which a level of support for the troubled company was agreed.

The meeting was held largely because of the action of Sinclair manufacturer Timex, in selling its stock of Spectrums to Zeta Services (see *Popular Computing Weekly*, June 6) in order to recoup some money on Sinclair products.

The main parties at the

meeting were Barclays, Citibank, Thorn Emi, Timex and AB Electronics.

The Bank of England has also undertaken to provide a chairperson from its industrial finance division to chair negotiations between Sinclair and potential investors.

However, serious talks cannot begin until Sinclair's auditors complete last year's accounts. These were due to be ready last week, but have been delayed.

## Acorn boss appointed from Olivetti

ACORN has announced that Alex Ubaldi, a senior director at Olivetti, has been appointed as acting managing director at the Cambridge computer company.

The post had been left vacant after Olivetti rescued the company in February.

Acorn's chairman, Dr. Alexander Reid, had no comment to make on the appointment last week.

Following the rescue Acorn's shares have still failed to make a recovery. After dipping as low as 8p at one point last week, they currently stand at 13p. Before Acorn's troubles the shares stood as high as 114p.



## Receiver called in

PROTEK, developer of the Protek joystick interface, a Spectrum modem, and the Spectrum game *Hunter Killer*, has called in the receiver.

D J Watt of accountants Cork Gully's Edinburgh office, has been appointed to handle the receivership.

● Romik, the software company which crashed in March, had debts totalling over £100,000, a creditors meeting revealed last week.

## Software auction

AN AUCTION of computer software in aid of the Ethiopian Famine Appeal is being held at County Hall, London SE1 on June 15, starting at 11 am.

Lots will include software titles from US Gold, Activision and Quicksilver among others. The auction is being organised by the industry publication *Computer Trade Weekly*.

## First showing of C128 at show

THE highlight of the 6th Commodore Computer Show, held in London between June 7 and June 9, was undoubtedly the first public showing of Commodore's new C128 machine in this country.

Both models, the basic C128 and the C128D - with built-in single 5 $\frac{1}{4}$  inch disc drive - were shown.

Commodore has still not announced a definite release date or price for the C128 machines. The machine is expected to be available in vol-

ume by September, but may be released to some dealers during the summer. "The C128D will be launched around September or October," said Paul Welch, Commodore's UK sales and marketing manager. The price for the basic C128 is expected to be between £300 and £350, while the built-in disc version is likely to be considerably more expensive, probably nearer £500-£600.

The new 1571 disc drive will also be launched at the

same time as the C128. This is fully compatible with the C128, operating as a 1541 in Commodore 64 mode, and as a much faster drive in CP/M and 128 mode.

Also at the show, Commodore previewed a new colour monitor, the 1902. The current 1701 monitor has only a 40-column screen, and so cannot be used with the 128 in CP/M or 128 mode.

Paul Welch also announced one more bundling package for Commodore 64 selling the 1541 disc drive, Commodore modem and *Easy Script* together for £229. The price includes a year's subscription to *CompuNet*.

Commodore has already announced three other special packs: a £199 deal to pack the Commodore 64 with cassette player and *International Soccer*, the £449 *Plus/4 Business Pack* (see *Popular Computing Weekly*, June 5) and the £349 pack offering the 1541 disc drive, MPS 801

continued on page 7b



## SHEKHANA COMPUTER SERVICES

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HERBY DUMMY RUN	9.99	7.50	BEACH HEAD	7.95	5.90
STREET HAWKS	7.95	5.90	RAID OVER MOSCOW	7.95	5.90
SPY HUNTER	9.99	7.50	TIR NA NOG	9.99	7.50
SPYFIRE 40	9.99	7.50	THE FOURTH PROTOCOL	12.95	8.99
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THE FOURTH PROTOCOL	12.95	8.99	BRUCE LEE	7.95	5.90
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IMPOSSIBLE MISSION	8.95	6.75	WARLORDS	5.99	4.25
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# BLOCK

CAN YOU WAIT?



# Letters

## QL command

I don't know if other QL users will find the following of any interest to them, but there is one command on the ZX Spectrum which I would dearly like to have on my QL. That is the use of *Line* when used to auto start a program loading, eg, *Save "name" Line 200* would cause a program, when *Loaded* back, to start from *Line 200*.

On the QL, however, you have the *LRun* command which causes a program to start from the beginning which would then need *Gotos* *Gosubs* or *Procedure* calls to start from the specified part of the program.

I have found a very simple way around this difficulty and that is to *Open* a file to microdrive and list the program to it, ending with *Print* "Run".

To try it, first have a program in memory then enter as direct commands the following:

```
OPEN S:MDV1 name : LIST S :
PRINT S:"RUN xxx" &
CHRS(10) : CLOSE S
```

Now, whenever the program is *Loaded* back by either the *Load* *Mdvl*, etc, or *LRun* *Mdvl*, etc, the program will start from the line specified in the print statement above; *Run xxx*, where *xxx* is the number.

D Hayward  
No4 Lane End  
Whelford  
Gloucester



"64K's enough for British Amstrad users - but in America everything's got to be bigger."

## Monolithic

Re Letters page cartoon Vol 4 No 18.

I entered the listing that was on the *Monolith* and then typed *Run* and for some reason my monitor became 12 feet tall and its weight increased to five tons.

I might have misread some of the hieroglyphics.

W G Gillett  
74 Castaway South  
Leasowe  
Wirral  
Merseyside L46 1PB

## Out of stock

It seems a shame now that even chain stores can decide if a computer sells or not. I am of course talking about the events concerning *Commodore* that happened recently.

When the chain stores find themselves out of stock they also find they cannot buy new stock at a cheaper price and so discontinue the computer. The manufacturer finds it is now unable to sell the

computer.

If they wanted to, the chain stores could and the computer industry in about a month's time.

J M Shearing  
Ivy Mill Lane  
Godstone  
Surrey  
RH9 8NB

## Minor bug

During abusive treatment of my Bank Account program I have found a minor bug.

Statement of Account: It has been found that if the option "EXAMINE/DELETE ENTRIES" is selected before any Data has been entered for the month in question, the program will stop with an error report.

This will be eliminated by adding the following line:  
6045 IF  $s(1,x) = 0$  THEN  
GOSUB 420: RETURN

D G Shedden  
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## NAPOLEON'S SANDWICHES



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# Chicago Show dominated by Activision and Epyx

NEW software at the Consumer Electronics Show, held in Chicago between June 2-8, was greatly reduced from last year in the games and educational areas, although Activision, Epyx and Broderbund introduced major new titles.

Broderbund, one of the largest US software companies, concentrated its new releases on the Apple II range.

One of the software highlights of the show was the preview of Epyx's *Summer Games II* and *Winter Games*.

*Winter Games* follows the

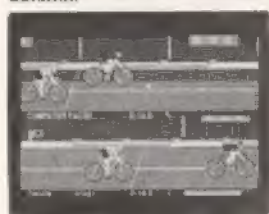


same format of sophisticated graphics and complex animation as the original *Summer Games*. The earlier game has now sold over 200,000 copies in the US alone according to Epyx. *Winter Games* features

six winter sports: skiing, the ski jump, a ski biathlon, figure skating, freestyle skating and bobsledding.

*Summer Games II* adds eight new sports to the original title - rowing, triple jump, javelin, high jump, fencing, cycling, kayak canoeing and show jumping.

While *Summer Games II* will be available in the US this summer, *Winter Games* will not be released until the autumn.



Following on from Epyx's deal with Lucasfilms which produced *Ballblazer* and *Rescue on Fractalus*, the company has announced it will be publishing two more Lucasfilm games, *The Eidolon* and *Koronis Rift*.

*The Eidolon* is an arcade adventure set around the Eidolon, a 19th century time machine, which transports the player to a land of caverns, trolls and dragons. The task is to track down the missing inventor of the Eidolon.

In *Koronis Rift*, the player must try to recover weapons used by ancient civilisations, destroying the base held by hostile guardians of the ancient weapons.

While the new Epyx games should reach the UK through licensing deals, it will not be from CBS, since the contract between the two has been terminated. US Gold is strongly rumoured to be taking over the Epyx licence.

Activision's new titles, which should be released in this country through Activision UK, showed a greater emphasis on simulation games, and surreal scenarios. *Ghostbusters* author David Crane's latest effort is *There's Someone Living Inside My Computer*. The screens show a diagrammatic representation of a house, with your computer dweller

inside, with whom you can converse via the keyboard.

Hacker from Activision is an adventure with a plotline similar to *System 18000* in this country - the computer plays the part of a computer, with the player as a hacker, trying to discover what you have hacked into.

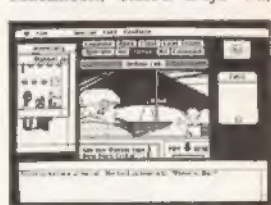
*Fast Tracks* is a computer 'slot-car' construction kit, while the idea of *The Great American Cross Country Road Race* is self-explanatory.

Activision announced that it has signed a deal with Lucasfilm, to publish its titles outside North America. *Ballblazer* and *Rescue on Fractalus* should be available in Europe and Australia this summer.

Simon and Schuster announced a text adventure based on *Star Trek*, called *Star Trek: The Kobayashi Alternative*. The player takes the part of Captain Kirk, and must use the Enterprise crew and resources in solve an intergalactic mystery. A Commodore 64 version of the game will be available in the States in October.

Mindscape announced two licensed titles, one based on a Stephen King novel *The Mist*, the other, interestingly enough, based on *A View to a Kill*. Mindscape's version, however, is a text adventure covering all the action of the film rather than three separate segments.

Mindscape also showed a graphic adventure for the Macintosh, called *Deja Vu*,



designed specifically to use the Mac's hi-res graphics, windowing capabilities and different fonts.

Of the British software houses, only Mastertronic was prominent. Its budget Commodore 64 discs, which sell for \$9.99, have done remarkably well since they were launched in the US. Mastertronic launched *Spooks*, *The Captives*, *Finders Keepers* and *Wrath of Magra* for the first time in the US.

## Commodore Show

◀ continued from page 5

printer with *Easy Script*.

Anyone purchasing the £199 Commodore 64 package or C16 starter pack can also take advantage of a Commodore holiday offer - three nights accommodation for two at a range of 300 hotels in Europe.

Commodore also showed its willingness to move towards 3½ inch discs - which are fast becoming an industry standard - by showing the 1981, a single-sided 170K capacity 3½ inch disc drive 1541-compatible.

"There is no specific launch date for this model, but if 3½ inch discs become the standard, we have the 1981 ready to launch quickly," said Commodore's John Baxter.

A number of new software packages were launched at the Show. Melbourne House's karate simulation *Way of the Exploding Fist*, due for release next week for the Commodore 64 at £9.95, took up all of the company's stand.

Audiogenic used test cricketer Graham Gooch to promote its new cricket simulation, *Graham Gooch's Test Cricket*, to be released this month at £9.95.

Continuing with sports simulations, Commodore itself launched *International Tennis*, the latest in the series which includes *International Soccer* and *International Bas-*

ketball. *Tennis* will be in the shops this month at £5.99.

Commodore also announced the addition of *Sound Studio* and *Sampler* to its music series. Like *Music Maker* and the *Playalong* album series, the two new packages were developed by Music Sales. *Sound Studio* turns the C64 into a music synthesiser and multi-track sequencer; *Sampler* enables the user to record any sound and then alter it and play it back over a 10-octave range.

*Sound Studio* will be available by the end of the month at £14.95. *Sampler* is intended to be a Christmas release at £69.99.



Test cricketer Graham Gooch

Also on the musical side, Island Logic's *Music System* has been converted to the C64 and was on show.

Precision launched a new C64 word processor, *SuperScript*, an enhanced version of *Easyscript*, a low cost version of its acclaimed *Superbase*, called *Superbase Starter*, and *Supertype*, a typing tutor. *SuperScript* costs £69.99, *Superbase Starter* £39.95, and *Supertype* £19.95.



# Joysticks Survey

Thirteen of the best, compared. In our first Arcade games special feature, issue, *Graham Taylor* gets to grips with a selection of the top joysticks available for micro

**BBC Pro Joystick**  
Price £17.95  
Supplier Kempston



**T**he BBC Pro Joystick is beautifully designed. You need no additional software and the whole thing can be plugged straight into the analogue port with no need for cumbersome interfaces. It also uses eight-way micro switches to register movement which means it's very sensitive - maybe too much for some games.

The design is sturdy with a metal shaft, fire buttons are large, although the action was maybe a little sloppy - they didn't quite 'feel' like they registered your press. Extensive testing on Acornsoft's *Revs* revealed no major design flaws - the simple ball shaped tip provided a positive non slip grip.

In short an excellent joystick for BBC owners. Quite expensive but, remember, many alternatives also need an interface.

**Kempston Formula 1 Joystick**  
Price £16.95  
Supplier Kempston



**T**his is a deluxe version of the Kempston Formula 2.

The main difference is the use of micro switches which makes for better response and greater longevity (they

apparently don't break so easily).

The basic design is the same as the BBC Pro Joystick - strong metal shaft, left and right fire buttons, firm ball grip. As with the BBC there may be some minor doubt about the fire button response - it's not all that firm.

One point that hasn't been skimped - the length of the connecting lead - it's long at five feet and that can be useful. Short leads can get easily twisted up in two-player games and force players to stand close together. £16.95 is not cheap but I don't think it'll need replacing too often.

**Kempston Formula 2 Joystick**  
Price £11.95  
Supplier Kempston



**T**he Formula 2 Joystick is Kempston's bottom range item and at £11.95 it's one of the cheapest joysticks around.

It uses leaf switches which have a number of problems associated with them. For one thing the action is very sluggish. To move left you have to shove the whole shaft firmly and far to the left - it takes a noticeable amount of time and on our test program (*Dynamite Dan*) definitely caused valuable lives to be lost. There is a longer term question of reliability. The leaf system works a bit like those metal plate battery connectors, there is a danger that because of oxidation the electrical connection could fail to be made.

Although unlike the Formula 1, you get a top-of-shaft fire button generally the other aspects of design seem cheaper. The shaft is some kind of

nylon-like material rather than metal and the grip, although more like a motorbike throttle, is not necessarily easier to use. As Kempston joysticks go, I'd certainly rather pay the extra five pounds for the Formula 2.

**Flightlink Switch Joystick**  
Price £11.45  
Supplier Flight Link



**F**light Link has a range of similarly styled joysticks designed for a range of machines. The basic model has an Atari connector and costs £11.45 - less than the average for switch-type joysticks.

The actual switching is excellent, very responsive indeed and with a reassuring 'click' that sounds like it isn't going to wear out quickly. The fire button also sounds and feels like it could take a lot of strain. What you lose over cheaper joysticks is in design - the shaft is a short metal pipe, topped off with a short piece of plastic. It works perfectly well but isn't elegant. If you don't care about looks, this is one of the best switch-type joysticks available.

**Flightlink BBC Joystick (pair)**  
Price £17.95  
Supplier Flight Link



**T**hese joysticks are the same overall design as the Flightlink switch-type joystick but use an analogue system and come as a pair both connected to one BBC analogue port connector. At £17.95 for a pair of joysticks these are obviously very cheap, although I wonder how many games on the BBC have facilities built-in for two joysticks - not many I think.

Analogue systems tend to be unreliable but this one feels good and is surprisingly responsive, although it doesn't re-centre itself automatically.

In fact it's fair to say you could easily believe it was a micro-switch system - Flight Link give it a 300,000 cycles track and wiper life which translated means they expect it to last a long time. Very good value if you need two joysticks (a single analogue joystick costs £9.95).

**Vulcan Gunshot Joystick I**  
Price £8.95  
Supplier Vulcan Electronics



**A** very cheap analogue joystick that looks pretty good, has a reasonable grip and a pretty good response. The doubts come with long term reliability. We've had one in the Popular office for around six months or so and it's broken - the amount of use it got was too much for it and the switch mechanism gave in.

However, it had to work hard in that time and maybe it was just a dodgy one from the factory.

If you're limited in cash they don't come much cheaper.



# Joystick Survey

**Vulcan Gunshot Joystick II**  
**Price £11.95**  
**Supplier** Vulcan Electronics



**T**he only difference between this joystick and the Gunshot I is the fact that it's black and that it has an auto-fire switch.

Setting auto-fire to on is the same as holding down the fire button continuously. This is fine for your basic blast-'em-up game but not that useful in *Manic Miner*-style games where all that happens is that you bounce around everywhere.

If you are absolutely addicted to games which need lots of laser destruction you might think the extra £3 for the fire switch is worth it. Most people probably won't need it.

**The Boss**  
**Price £25.00**  
**Supplier** Computer Games



**T**his joystick uses six-way leaf switches rather than micro switches but it responds well.

There may be a few doubts about long-term reliability, partly due to the mechanics of the leaf system and partly because of the construction - the joystick shaft seems to be mainly plastic.

Visually the joystick is neat - smart black and grey colour scheme with a moulded grip. One complaint here, the grip is short and the fire button is mounted on the top. This

means that to operate the fire button the thumb has to be pressed down in a slightly uncomfortable way.

A reasonable mid-range analogue joystick.

**Bat Handle Joystick**  
**Price £25.00**  
**Supplier** Computer Games



**A** very high quality joystick using a specially developed left system to register joystick movement.

The Wico leaf system does appear to give the kind of response you'd expect from a micro switch system and is apparently as reliable.

This joystick has a thick metal shaft which recentres automatically and twin fire buttons. One is top-mounted the other in the base - a switch selects which is in operation.

The design is plain; square base and tapered plastic grip. It looks like it might cause you to slip but in practice it never gave any problems.

A very nice joystick but £25 is a lot compared to a Kempston Micro Switch at £16.

**Super Three Way Command Control**  
**Price £27.00**  
**Supplier** Computer Games



**T**his is basically the Bat Handle Joystick with a choice of grips - a round handle, a tapered plain grip and your standard ribbed motorcycle-style handle. Changing between grips is simple and each handle fitted firmly. I can't believe that people really need three handles but I suppose the First Division addict may have a use for them.

**Super Champ**  
**Price £12.95**  
**Supplier** Dean Electronics



**S**heer amount of plastic makes this one good value. It's probably the largest joystick available. That and the matt black colour have given it such macho appeal that it's been the most successful joystick in the US for a while. Although not micro switched it has a tough but flexible ring of plastic between shaft and base that prevents you breaking it easily.

The grip is firm with a fire button mounted both on the top for thumb action and another just below that for first finger - it's very easy to use.

All in all unless you want the extra sensitivity of micro switches this could be the joystick to go for.

**CGL Champion**  
**Price £11.99**  
**Supplier** Computer Games



**T**his is a budget-price joystick which nevertheless includes stick and base-mounted fire buttons and an auto-fire switch.

The saving is made in the switch design. This uses some sort of leaf system with an action that feels a little doubtful. I can imagine that it might not last very well, but is still good value.

**QL Sure Shot**  
**Price £26.95**  
**Supplier** Eidersoft



**A** very high quality device which plugs straight into the QL's serial port.

It uses a very high quality micro switches with a reassuring click when contact is made. It has a plain design with flat rectangular base and a taper-style grip. Fire buttons are mounted left and right on the base and on the top and all have a very good and decisive response.

The shaft is thick metal for durability and generally this looks like a joystick that will last. Highly recommended.

**Dean Electronics, Glendale Park, Fernbank Road, Ascot, Berks.**

**Computer Games Ltd, CGL House, Goldings Hill, Loughton, Essex.**

**Vulcan Electronics, 200 Brent Street, London.**

**Flight Link, Unit 12 The Maltings, Turk Street, Alton, Hants.**

**Kempston Micro Electronics, Singer Way, Woburn Road, Industrial Estate, Kempston Beds MK42 7AF.**

**Eidersoft, The Office Hall Farm, North Ockenden, Upminster RM14 3QH.**



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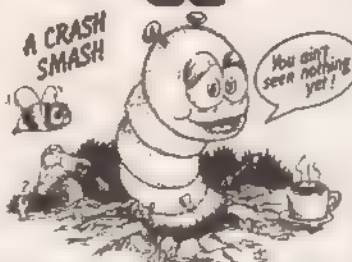


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# QDOS — for smooth operators

If you have a Sinclair QL and you want to program effectively in machine code, then Andrew Pennell's latest book is for you.

The Sinclair QDOS Companion is a complete guide to the working of the QL operating system. It begins with an introduction and a chapter on multi-tasking, before going on to cover the 8049 second processor, input/output, device drivers, exceptions, interrupts and the Job Scheduler, and QDOS utilities. The final chapters show you how both to extend SuperBASIC and make use of external ROMs.

The book is definitely not just a rehash of the QDOS manual, but extends the basic information to give you a broader understanding of how best to make use of QDOS. The QDOS traps are described not in numerical order but in a more logical order based on their use.

Andrew Pennell is an experienced Sinclair author. Practical Computing described his previous book Assembly Language Programming on the Sinclair QL as: 'An excellent introduction ... eminently readable'.



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# Complete Arcade

## SPECTRUM

**Knight Lore** ■ Clear 24831: Restore: Gosub 60: Gosub 60: Poke 62000,51: Poke 62178,0: Poke 62258,201: Poke 62410,251: Poke 62411,201: Randomise USR 62374

30 Print USR 24832  
40 Data 83286, 23306, 221, 33, 64, 188, 17, 14, 4, 82, 255, 55, 206, 86, 4, 201  
80 Data 41012, 41021, 33, 113, 158, 17, 48, 242, 1, 172, 1, 178  
80 Read a,x: For p=a to x: Read d: Poke p,d: Next p: Randomise USR a: Return

Just type in the above and play your original from just past the initial header  
Poke 50064,201 stops metamorphosis  
Poke 80209,0 gives infinite days  
Poke 49788,n is number of objects needed to collect

**Underworld** Use the Knight Lore Program but make these changes:

Line 80 change 41012 to 41008 and 41021 to 41017  
Line 30 change to Print USR 25610  
Line 20 is Poke 53378,0 for endless lives or Poke 45019,201 removes moving sprites

**Mutant Monty** Poke 84800,0: Poke 84887,0: Poke 24893,0: Poke 55321,0: These give infinite lives.

**Project Future** Poke 37882,0 removes aliens

**Cookie** Poke 28696,62: Poke 28696,8: Poke 28697,0: Poke 28698,0 endless lives

**Pyramarama** To get past the hyperloader type in this routine. It will load the game and then stop it from auto starting:

10 Clear 28898: Restore  
20 For A=1 to 14  
30 read b  
Poke(a+b28999),b  
40 next a  
50 Print "insert game and press play"  
60 Randomise USR 30000  
70 Poke 32844,207  
Poke 32845,26  
80 Poke 32828,351  
Poke 32829,301  
90 Poke 32789,243  
Poke 32821,0  
100 Randomise USR 32789  
120 Stop

### Fall Out

Type in the following for infinite lives:  
10 Clear 24100  
11 Load "" code  
12 Randomise USR 85100  
13 Load "" code  
14 Poke 44204,0  
15 Randomise USR 41200

### Sky Ranger

(Level) Code: (1) enter, (2) magic, (3) pilot, (4) stop, (5) pairs, (6) event, (7) recap, (8) alibi.

### Horace and the Spiders

Poke 25142,0 - no hills on Level 1  
Poke 25773,0 - no spiders on Level 1  
Poke 28628,0 - ropes are pulled in fast  
Poke 28720,0 - jump onto next rope when you like  
Poke 30070,0 - all spiders die on Level 3 instantly  
Poke 35218,0 - hills and moru hills, for masochists  
Poke 25910,0 - slow spiders on Level 3  
Poke 30116,0 - infinite spiders on Level 3  
Poke 28628,62 - stops ropes being pulled up on Level 3

### Stop the Express

before entering the Pokes do the following  
Type MERGE "", then press Enter, and press play on your original tape  
Type Clear 25899: Load "" code.  
then press Enter, and press play on your original. Stop the tape, then type Poke 49111,201: Randomise USR 49086, then press Enter. You can now enter your pokes  
To run the code type Randomise USR 32763.  
Poke 34464,183: Poke 34926,183: Poke 35257,0 - endless lives.  
Poke 35780,0: Poke 39548,0 - unlimited time.  
Poke 40673,0: Poke 40674,0: Poke 49261,N - start at carriage number 'N' (Be careful some values may crash game) if it does not work then add: Poke 40073,4

### Freeze Boes

Poke 34810,0 - infinite lives.

### Pr-Ballad

Poke 44416,x - x is number of lives

### Paytron

Poke 28633,0: Poke 28828,0 - endless fuel.  
Poke 41098,17: Poke 41099,32: Poke 41100,1: Poke 41101,0 - endless men.  
Poke 28142,62: Poke 28143,255: Poke 28144,0 - endless oxygen.

### Frank n' Stein

Poke 28277,x - where x is the number of lives.

### Ah diddums

Poke 24942,x - where x is the number of lives.

### Pyramid

Poke 44686,0 - limitless energy.

### Arcadia

Poke 28776,0 - infinite lives.

### Zip Zap

Poke 53781,0: Pokes 93752,0: Poke 53753,0: Poke 54141,0: Poke 54142,0: Poke 54143,0: Poke 54144,0 - infinite energy

### Wild West Hero

Poke 23821,x - where x is number of lives (32 max).

### Mr Wimpy

Poke 33983,0 - infinite lives.  
Poke 33909,x - where x is number of lives.  
Poke 43106,0 - infinite peppers  
Poke 33721,x - where x is number of peppers.  
Poke 33501,0 - skip first stage

### Maze Death Race

Poke 26730,0: Poke 26731,0: Poke 26689,0: Poke 26690,0: Poke 26771,0: Poke 26772,0 - works with interface 1

### Kosmic Kangs

Poke 38136,x - where x is the height to jump.  
Poke 23994,x - where x is the number of lives.  
38212,0 - infinite lives.

### Monty Mole

Poke 36004,0 - endless lives.  
Poke 38301,201 - no crushers.  
35874,255 - lets you fall a great height.

### Eskimo Eddie

Poke 24686,24: Poke 24687,78 - infinite lives.

### Kokotonu Will

Poke 43743,0 - infinite lives.  
Poke 42214,x - where x is the number of lives.  
Poke 42177,2 - changes some of the sprites to red, so they don't kill Will.

### Larry Jones

Poke 56693,0 - infinite lives.

### Spectacle

Password: "Everyone's a nervous wreck"

### Scuba Dive

Poke 63711,x - where x is the number of lives.  
Poke 46896,0 - makes player two's claims open less frequently.

### Android

Poke 62249,24: Poke 62250,32: Poke 53897,0 - infinite lives.

### Mutant Monty

Poke 54833,0 - gives 236 lives

### River Rescue

Poke 33420,0 - infinite lives  
Player 1.  
Poke 33482,0 - infinite lives  
Player 2.

### Zaxxon (Star Zone)

Poke 46823,x - where x is the number of lives.

### Son of Blagger

Merger the loader and delete Lines 70, 80, 81, 82, 90 Insert Line 45: Poke 27278,0. The above Poke will give you a hacker menu (All routines).

### Gilligans Gold

Poke 52982,0: Poke 52981,0: Poke 52982,0: Poke 52983,0 - unlimited lives.

### Finders Keepers

Poke 34828,0 - infinite lives

### Fred

Poke 30384,x - where x is the number of lives.

First type LOAD "" CODE 26384, press Enter then press play on your original. When loaded enter, SAVE "FRED" CODE 34500, 23650, Press Enter and save this on a blank tape. Rewind your tape, then type LOAD "" CODE 24500, Press Enter, and play on your new tape. Enter your pokes, then to run the code enter, RANDOMIZE VSR 30384.

Poke 31178,0 - this will make the last unit of power last forever.  
Poke 30418,X: Poke 31892,X: Poke 44696,X - where X is the number of power units (max 240)

### Sir Lancelot

10 Input "no of lives": X  
20 For A = 50000 to 50084  
30 Read B = Poke A,B  
40 Next A  
50 DATA 49, 125, 91, 231, 33, 128, 61, 17, 138, 36, 62, 103, 89, 209, 86, 5, 243, 62, X, 50, 38, 92, 196, 8, 93  
60 CLS  
70 Print "Load Main Headerless Block"  
80 RANDOMIZE VSR 50000

Forward your tape until the main headerless block, then run the above program, when you see the message, press play on the tape, this will give you X lives.

### Chuckie Egg

First type: MERGE ""  
Poke 24501,185: Goto 1  
Then press play on your original, the game will load normally, but when loaded you will see the



# Addicts Guide

OK message. You can now add your own routines, and to run the machine code type: RANDOMIZE USR 42000

Poke 42837,0 This will give you infinite lives.  
Poke 39181,0 This will give you a never decreasing bonus

The following program will convert *Chuckie Egg* to work with a Kempston joystick.

10 DATA 39277,103,39321,71,40311,71,40883,71,39341,79,40254,79,40850,79,40888,98,40713,87

20 RESTORE

30 FOR I = 1 to 9

40 READ A,B

50 POKe A, 219: POKe A-1, 253: POKe

QA: POKe A, 3,0: POKe A-4, 203: POKe

A, 8,8

60 NEXT I

The screens are 872

bytes long, and hold at address 40000 onwards.

The values in the addresses are as follows.

0-Blank Space 170

1-Right side of the ladder 171

2-Left side of the ladder 172

3-Egg 173

4-Food 174

5-Floor & walls 175

168-Top ring of the cage 176

169-Top ring of the cage 177

178

179

180

181

The cage itself

There are 3 sections of the cage, each of 4 characters

The following program will fill all gaps at the bottom of the screen:

10 FOR F = 40000 to 51375 step 672

20 FOR G = 0 to 31

30 FOR H = 0 to 31

40 NEXT G

50 NEXT F

The food can be changed to eggs, so to make the game easier change the 4 to 5 in Line 30.

The Screen address.

Screen	Addresses
1	46000-46671
2	46872-47343
3	47344-49015
4	48016-49687
5	48888-49359
6	49360-50031
7	50032-50703
8	50704-51375

Some of the Characters are at addresses

(poke 23578,x : Poke 23578,y)

x = 248 : y = 132 ladder, eggs, food, floor, words

x = 248 : y = 133 enlarged characters

x = 248 : y = 135 duck characters

x = 48 : y = 138 cage

x = 160 : y = 138 words

*Jetset Willy* Save screen by pressing 5 at any time (but start the tape first because no start tape message will appear).

Poke 35538,191 : Poke

35600,1A : Poke

35601,254 : Poke 34987,0

: Poke 34988,0 : Poke

34999,0

For I = 36847 to 36890

Read A = Poke I,A:Next I

For I = 85500 to 85515

Read A = Poke I,A:Next I

Data 253, 229, 231, 228,

221, 33, 220, 255, 17, 17,

8, 178, 205, 184, 4, 6, 50,

118, 18, 253, 17, 0, 27, 82,

255, 221, 33, 0, 64, 205,

184, 4, 203, 221,

225,253,225,14, 254, 14,

254, 14, 254, 0, 0, 0, 0,

Data 3, 63, 57, 62, 69, 69,

78, 36, 32, 32, 32, 27, 0,

64, 0

To jump rooms: Go to landing and get to lowest level then type in the letters WRITETYPYR - don't go up ladder. You can now jump to any room by pressing a sequence of numbers 1-8 and then press 9 at the same time. Eg. for Off Luncheon just press 9. To go to Bathroom press 1,8,9 all together.

*Android 2* The first clearing kill yourself 4 times then go over a mine at the same time as a monster, you will then lose another 2 lives but due to a bug you will now have infinite lives and infinite time

*Ghostbusters Accounts:*

Name Ghostbusters

Account 00169605 (\$

100,000)

Name S

Account 20203002 (\$

24,000)

Name Tang Billy

Account 16570011 (\$

112,100)

*Crypt* Level coders: 1) Carnell

Software 3) beats 4)

all 5) the 6) others

*Cavelon* Press all the keys on rows QWERTY and ASDF when I says Hi Chris what do you want? Press a number from 1 to 6 to start at that level. Alternatively, move man into maze and type JS WILLY

*Wheelie* Enter codes: 1)ENTER

2) WITTY 3) SHARK 4) BEBOD 5) XENON 6) ZX81 7) 2MOL3 8) HRME2

*Tu Na Nog*

If touched by a sidha, press symbol shift 5 once to restart game from your current position (may need to repeat)

*Knight Lore*

If you prop an object in the wizard's room the spell doesn't appear, enabling you to pass through the room more easily

*Zooon*

For infinite lives: Poke 24743,0

*Pr-in-are*

For infinite lives: Merge "" the loader than insert Poke 38151,0 before the let I ~ USR 24876 statement

*Manic Miner*

For infinite lives: Poke 35138,0 after Basic loader between 30 and 40

*Guess Kine*

1) Merge Basic Loader 2) Edit after the load lines Poke 25386,255 (255 lives) 3) Change USR to 25008 4) Run program and restart Tape

*Chiller*

Poke 34028,0 - no energy loss  
Poke 39791,0:Poke 40062,0:Poke 40333,0 stops moving sprites  
Poke 41188,0 top men vanish

*Sabre Wulf*

Poke 43678,288 for infinite lives (works on series 2 Spectrum with interface 1)

*Tu Na Nog*

Poke 34202,200 (no sidha)

*Manic Miner*

To change screens, (Bug Byte version type on keyboard when) game is running 6031789. When boot appears use combination of key 6 plus one or more other numbers to change screen, eg, press 8 and 5 for the warehouse.

""for Software Projects version Type TYPEWRITER

*Moon Alert*

Poke 39754,0 - endless lives  
Poke 42404,n - n is number of lives  
Poke 42654,195 - Immortality  
Poke 37035,201 - no enemies in air

*Tornado Low* Edit these lines in header for infinite lives. 20

DATAS5,62,253,221,33,0,64,17,166,181,205,88,9,82,0,50,190,139,50,15,133,201,50 For n = 63423 to 63444 3000 Randomise USR 65423

Early ULTIMATE games use Poke 23788,1 to allow the header to be edited

*Lunar Jetman* Poke 38985,0 or Poke 36966,324: Poke 38648,3 for endless lives

*Select Level* Poke 43083,x-1 where x is level.

*Trans Am* Break game after main block has loaded Type Poke 25440,0 CONTINUE

*Pi-Balled* Poke 48441,0 for endless lives

*Jet Set Willy*

Endless lives. Merge

header, Enter line 35

Poke 38898,0

Poke 34278,256 - Maria disappears

Poke 11883,288 - Makes number of objects to collect only one

Poke 36477,1 - Fall from any height

Poke 34795,n - Change start room number

Poke 36635,239 - Allows interface two to remain connected

Poke 39600,288 - Removes Altic Bug

Poke 60231,0 : Poke

42183,1 : Poke 59801,82

: Poke 59876,4 - Removes Banyan tree bug that makes game impossible

Poke 50652,170 : Poke

50683,170 - Blocks off Hades

Poke 50812,168: Poke

50820,168 : Poke

50528,170 - Put a ledge in 'Security Guards' so you can get under drive avoiding 'Forgotten Abbey'

Poke 59342,0 : Poke

58350,0: Poke 50357,170

Put invisible object in a place where it is easily collected on first landing

Poke 37874,0 - Collects objects on entering a room

Poke 38123,0 - Disables anything that moves

Poke 38383,60 - Higher jumping

Poke 37882,0 : Poke

37884,0 - Walk through monsters

*Finders Keepers* Poke 30394,255

*Tutankhamun* Poke 34953,57 : Poke

34970,58 - to change start room

Poke 27278,x where x

10 - Extra lives

Poke 27763,0 - Immortality



# Complete Arcade

**Hunchback** Poke 24760,255 for endless lives or try Poke 26888,0

**Mugby** Poke 43012,0 : Poke 43906,0

**Zoom** Poke 24743,0 : Poke 32892,0 - infinite lives

**Ground Attack** Poke 56212,0 - endless lives

**Hornet Goes Sking** Poke 30027,0 : Poke 30644,0 - no ski charge  
Poke 29008,0 : Poke 29048,0 - No cars on 'frogger' stage  
Poke 30782,0 - No ambulance fee

**Jack & Bearstail** Poke 56110,0

**Giant's Revenge** 10 Clear 24249 : Poke 23805,118 : Poke 23807,348  
20 Load "" Screens:  
Load "" Code  
25 Poke 24804,0  
30 Randomise USR 24460

**Sabre Wolf** Merge header, Type Poke 23756,1 : Clear 55535 Edit the line and delete the Print USR 23424 Add line 10 that includes your pokes. Add line 20 Print USR 23424.  
Poke 43578,359 - 1 player infinite lives  
Poke 45920,289 - 2 player lives  
Poke 45906,x - Number of lives  
Poke 41725,255 - No limit on game lives  
Poke 44929,0 - disable baddeas, so they only appear when the fire button is being pressed  
To get an object stand on it and press fire  
Poke 44786,0 - indestructible Sabreman  
Poke 45001,0 41011,0 : Poke 31802,0 : 48950,0 - stay blue, super fast and no monsters  
Poke 39702,30 - gets rid of materialising monsters  
Poke 44886,198  
44876,255 - 44877,80 - permanently cyan

**Lunar Jetman** Poke 36964,244 : 36965,3 - infinite lives  
Poke 43117,x - where x is no. of lives  
Poke 37989,201 - no enemy  
Poke 43082,x-1 - where x is level (x < 99)

**Trans Am** Poke 25446,0 - infinite lives

**Backpackers Guide to the Universe** To make a print-out of the guide on ZX or AlphaCom printer  
1 Clear 55535: Load "" Screens:  
2 Paper Chink  
3 Print at 10,0  
4 Load "" Code  
5 For x is 29182 to 26186: Read x: Poke x,1: Next x  
6 Poke 29160,21  
7 Data 82, 127, 219, 254, 230, 1, 194, 215, 113, 308, 172, 14, 185, 215, 113  
8 Randomise USR 29126  
Now load guide. Press Space for a copy

**Boalderdash** On cave E go all round perimeter then under gun boxes, wait until firely is going up, then follow, wait at top until both firelys are gone, then get guns and retreat

**Hunchback** Poke 26888,0 - infinite lives  
Poke 24760,x - where x is number of lives

**Moon Alert** Poke 42654,196 - infinite lives  
Poke 42249,24 - stops time decreasing  
Poke 42655,2: 52596,2 - keeps scrolling fast (whole screen)  
Poke 42404,x - where x is the number of lives (14 max)  
Poke 39784,0 - endless lives  
Poke 37035,201 - no enemies  
Poke 38112,255 - move left at 100 mph  
Poke 26371,28907 - hi score table

**Defenda** Poke 37531,0 - infinite lives  
Poke 34163,0 - infinite smart bombs  
Poke 35730,x - where x is the number of lives

**Tutankhamun** Poke 27783,0 - infinite lives

**Zoom** Poke 24743,0 - infinite lives  
Poke 25131,x - where x is the number of lives

**Atc Atc** Poke 36519,0 - infinite lives  
Poke 35353,0 : Poke 35382,0 - stops enemy drains  
Poke 36871,0 : Poke 39092,0 -  
Poke 37229,175 : Poke 37260,175 - makes doors open more frequently

25373,x - where x is the number of lives  
Poke 29078,0 - allows your rocket to take off with only one fuel block  
Poke 25020,0 - infinite lives

**Planet** Poke 24984,0 - infinite lives

## COMMODORE 64

**Bounty Bob Strikes Back** On level 1 after getting coffee pot type 8 and press F7 to go to level 8 after getting flower pot type 1 and press F7 to go to level 4 on level 11 after getting pitchfork type, and hit F7 to go to level 14

**Super Gridder** To make grid invisible until run over: When loaded press Run/Stop - Restore then type SYS 4624

**Tu Ne Nog** Poke 34202,200 makes complete game easier

**Booby** Hold down keys K,E,V,I,N all at the same time for chat mode with unlimited lives

**Manic Miner** For infinite lives: Poke 18571,234

**Falcon Patrol** For infinite lives: Poke 18784,234

**Bruce Lee** Get two joysticks, sellotape the fire button down which controls the Yammie and move him out of the way. You get more lives and only have to worry about the Ninja.

**Airwolf** When route is blocked by spinning ball when you rescue third scientist move it by shooting two switches at cave bottom - shoot it before it floats to the ground.

**Entombed** Try whipping anything that blocks an exit.

**Spy vs Spy** On one player game, wait in airport room, booby trap doors, when the computer has objects he will be killed getting to the airport - get objects and leave.

**Zaxxon** To make ship indestructible simply type Red before starting the game.

**Attack of the Mutant Camels** Load first part without running it (type Verify and then Return) Load second part by typing Load "",1,1 and enter  
Poke 11839,255 SYS 4056 you now have unlimited lives.

**Harper** Poke 21875,173 : Poke 21872,1173 (infinite lives)  
Poke 20400,169 : Poke 20401,0 : Poke 20402,234 disables collision detection

**Gridrunner** Poke 35699,173 - infinite lives

**Hover Bover** Poke 36680,96 - infinite lives

**Accipital** Poke 22743,57 : Poke 22744,57 Sys 18384 to start.

**Matrix** Poke 38455,234 : Poke 38456,234 dino

**Arcadia** Poke 10830,234, Poke 10815,234 dino

**Rollerball** Poke 29000,173 : Poke 28931,173 dino

**Armageddon** Poke 4088,1

**Skramble (anlog)** Poke 8908,173 infinite lives  
Poke 3906,169 : Poke 3909,0 : Poke 3815,234 no collision detection

**Blagger** After loading tap space bar - lives should change to 8 Then pressing CTRL (alphabet) keys changes screen.

**Manic Miner** Verify "" Return  
When loaded type Load "",1,1 Return when load error appears  
Poke 18419,x x is screen number 0-19  
Poke 18424,x x is lives (not too many)  
Sys 18384 to begin

**Chunx Miner** Verify "" Return  
Load "",1,1 Load "",1,1 Return  
When loaded type Poke 32778,0 or Poke 33320,x x is the screen to start at  
26  
Sys 33127  
Every time after this you run/stop restore type Sys 64736 and type the pokes in again.

**Entombed** To get rid of Mummies: Break into program - you'll need a reset board which won't corrupt the code - then use following pokes: Poke 27698,169 : Poke 37899,20 : Poke 27850,234 then SYS 2128 then fire button then F1 key then fire button you can then play (this only works in the corridor). Also: in the room of pools stand in the white pool then in the red pool then walk to the wall and stand to the right of the yellow pool then jump left so you land in the centre of the yellow pool

Due to the number of pokes/tips we received it is impossible to ensure that every one works; we have done our best to check as many as possible but cannot guarantee the results.



# Addicts Guide

then push forward the joystick - this jump technique if used in other blocked doors will get you through.

## VIC 20

**Parls of Willy** Load game. Press CTRL Q and RESTORE lives = Poke 111373.200 No chars disappearing - Poke 11260.234 Poke 11365.234 Start screen Poke 11378.x (x 0 to 31) Restart game with SYS 12269

## AMSTRAD

**Pyramarama** 10 Memory B191 20 Load 30 Poke 16087.0 50 Call 9182 Replace the header with this to get infinite lives

**Roland Goes Digging** 10 Memory 17000 20 Load "" 17800 30 Poke 17979.0 40 Call 16658

**Defend Or Die** 10 43M Load "Defend or Die" 30 Poke 6446.599 Rem lives 40 Poke 6446.599 Ram smart bombs 40 Call 4025

**Karl's Treasure Hunt** 10 Memory 12288 20 for 1 in 3: Load "" next 30 Poke 38102. lives 40 Call 38864

**Roland in the Caven** Press CTRL G to exit a level at any time Shift 4 A goes to next screen with 100000 pts.

**Blagger** Poke 32518.x x is lives less than 240 Poke 31938.0 : Poke 31840.0 together disable the conveyor so that they act like dry land. Poke 32579.0 : Poke 32580.0 drop from any height in demo mode find the start screen you want and press "ADGJL" simultaneously - now start as normal and you will begin on your chosen screen.

**Roland In Time** Type Memory 4898 Load "Routine". 5000 When loaded Poke 8860.167 (endless lives) To run it Call 5000

**Electro Freddy** 10 Memory 10000 20 Load "A1": Load "" Load "" Load "" Load ""

### Punchy

30 Poke 39356.255 40 Call 36323

### Roland on the Ropes

10 Memory 4800 20 Load "Roland.d" 30 Load "Roland.c" 40 Poke -25804.0 : Poke -2582.0 (minus addresses) 50 Call 41100

### Manic Miner

Poke 68FBD.x x is lives Poke 66FA9.0 endless lives poke 77401.24 switch screens by pressing 'ESC' Poke 6713E.0 drop from any height Poke 77311.0 stops air running out

### Football Manager

Break in and Coto 5213 to win the cup Coto 8170 if in the top three will earn your success money

### Jesse Willy

10 mode 1 20 memory 77ed 30 Load "" 40 For n = 170 to 244 80 Read 43 80 Poke n.val("6") as 70 Next 80 cls 90 call 170 100 Data 3E,C9,32,80,81, 21,00,80,11,01,80,01,06, 00,36,00,ED,B0,CD,EE, 7F,01,00,15,21,30,30, 22,7B,AF,C3,21,5D,AF 110 Data CD,53,AF,76, 58,87,87,87,47,76,C6,05, 16,08,AF,06,F2,C8,00, 3E,7F,32,81,81,C3,FA, AC

### Hunchback

10 Border 0: Ink 0,0: ink 1,8: ink 2,8: ink 3,25 20 Env 1,100,2,3 30 Env 2,90,-8,2 40 Env 12,10,-2,10 50 Pen 2 60 Memory 4391F 70 Load "Run 3". 84C00 80 Poke 661F8.1 90 Poke 661F9.1 100 Poke 661F9 + 18.1 110 Poke 661F9 + 19.1 120 Poke 661F8 + 28.1 130 Poke 661F8 + 27.1 140 Poke 20762.0 150 Call 65431

### Android 1

Infinite lives: Poke 66391. 6307A. 4998F and 633A0

### Mr EE

After the page has loaded, press BREAK, type "Load 'MREE' L800 < < Return > > " 661ECB - 6EA - RE-TURN - > Then type CASSA-4300 - < RE-TURN - > (infinite

### Obert

Let the whole game load, then press "CTRL - Break" then type PAGE = 41700 < < RETURN - > OLD - > < RETURN - > RE-TURN - > Change MEN\*: from 3 = the number of lives you want

### Candle Quest

To get out of jail, take the stool, jump and throw it at the torch, take the stool and torch and get to the top of the door, throw torch on bed and jump past guard when he rushes in

### Cylon Attack

Speed up game with ?MTE45 = 21-78PE46 38 (CR) - this also works for Chuckie Egg

### Snapper

For extra lives. Chain "" Snapper as usual but when "snap2" has finished loaded press Escape and enter: 457&FDD = 67F and then Run

### Elito

To make a lot of cash: trade computers from rich industrial planets to poor agricultural. If attacked by a few ships follow one slowly. The pattern of evasive manoeuvres will save you

### Frak

\*Load the last part of the game then type 763058 = 4F for infinite lives or 76304DD 1 so that the escape key changes levels Call 4488A to start game

## ATARI

### Diamonds

Poke 8.0:Poke 744,16 x = user(40980) Now enter and run this 16 restore 1000 : for x = 0 to 23 : read ins : poke 190-x,ins: next x 1000 data 169,66,141,39, 6,32,6,6,169,76,141,60, 21,169,88,141,81,21,169, 21,141,82,21,76,98,10 2000 end Now put diamonds in the tape recorder, type x user(82404) and press return. press r after the bleep and start tape. when the title page appears you have 1.5 seconds to press the system reset. Now type x user(1280) the rest of the game will load. If you don't have a disc system: don't load the disc before using this routine.

## QL

### Invaders

Add shooting sound. 100 For n = 0 to 36 Step w/110 If n > 30 Then R 240 Else R = 0 : 2120 BEEP 1500.N,R,15,2,0,1

## ELECTRON

### Zalega

Load the first program with LOAD "Zalega" and type PROCpugwash. This Electron will play the Pugwash theme tune with two voices.

## DRAGON

### Hungry Horace

To get high scores go to bell and stay there till it stops ringing.

### Ninja Warrior

Load game as normal but before typing EXEC type Poke 9489.n n is lives 1 to 255

### Planet Invasion

As above but Poke 7436.n n is 1 to 10 - larger values cause a crash

### Skramble

Slap\* Poke 32761,6H9E Poke 32753,6H04 Poke 32783,6H00 Poke 32754,6HBD Poke 32765,6H57 Poke 32766,6H5B Poke 32767,6H5B Exec 32761 Poke 6H1C7E, (player 1 lives) Poke 6H1C84, (player 2 lives) Exec 4056

### Whirley Bird

Poke 6H2078, lives Run Poke 6H2073, stage

### Lunar Rover

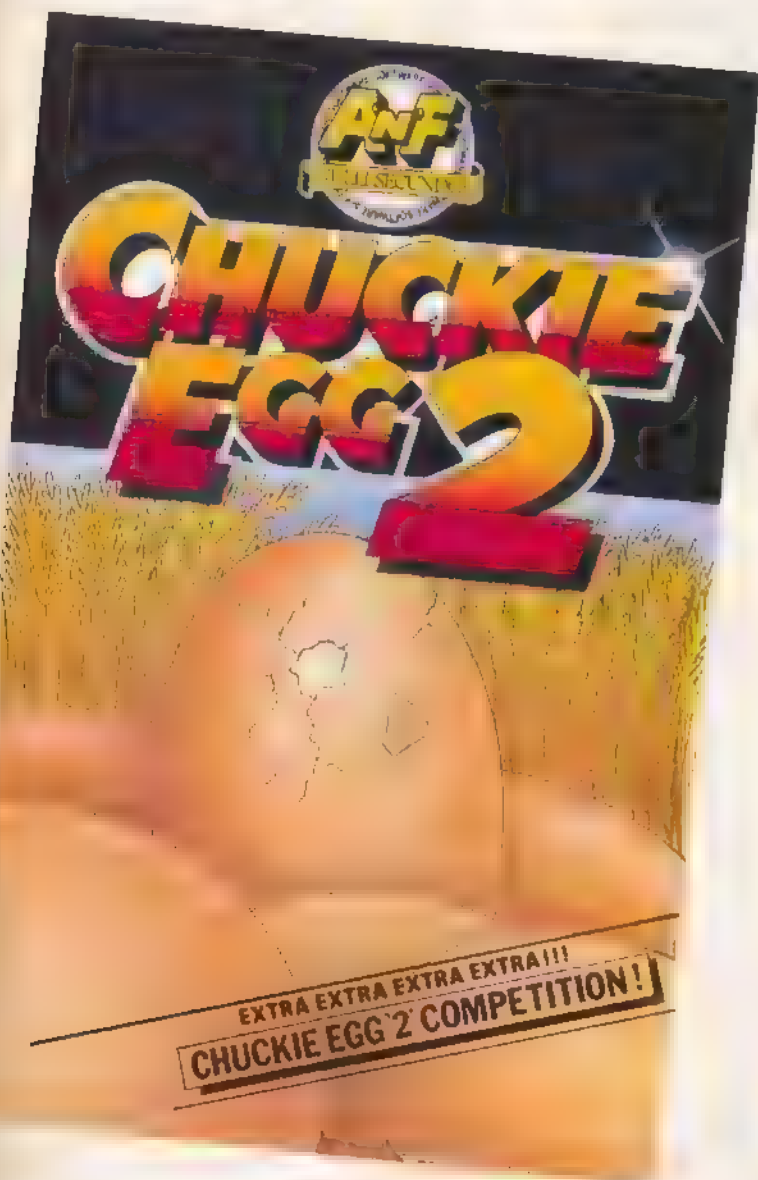
Poke 6H8728, lives Patrol

### Manic Miner

10 CLEAR 200,32598 20 ST = 32500 30 INPUT 1 40 FOR A = 1 TO LEN(A\$) 50 POKE ST.VAL("6H" + MID\$(A\$,A,2)) 60 ST = ST + 1 70 NEXT A-GOTO 30 Enter this CCBDD3FFD390A884E 87380C0808873817 8E0600A684A789FE 4330018C7E8A26F3 39 Then press break and save using CSAVEN"MINAL". 32800,32840,32500 Then NEW the basic and load manic miner with CLOADM"" 1213 Then enter EXEC 32600 To select a screen, press enter as normal then press a key from A to V (in upper case) To alter the number of lives, poke 32612 in MINAL.



# A great NEW game from A&F.



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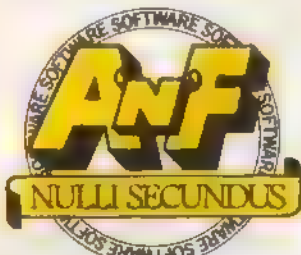


Our intrepid hero "Men House Harry" of "Chuckie Egg" fame has been called in to help a "Chocolate Egg" manufacturer sort out his automated factory, which has gone haywire. Harry, using all the skills he acquired working in the Hen House must get the wheels of industry moving.

Not only does Harry have to collect the ingredients to mix the eggs, but he will also have to collect the parts for the toys that go inside the eggs.

As if all these problems were not enough there are a number of other items that Harry will need to find and use to be able to complete the task. Things like ladders, bits of girders, keys and many more.

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# Laser Cycles

For our Arcade issue, what better than a machine code implementation of the classic game *Light Cycle* on the BBC B by Jeremy Thornton?

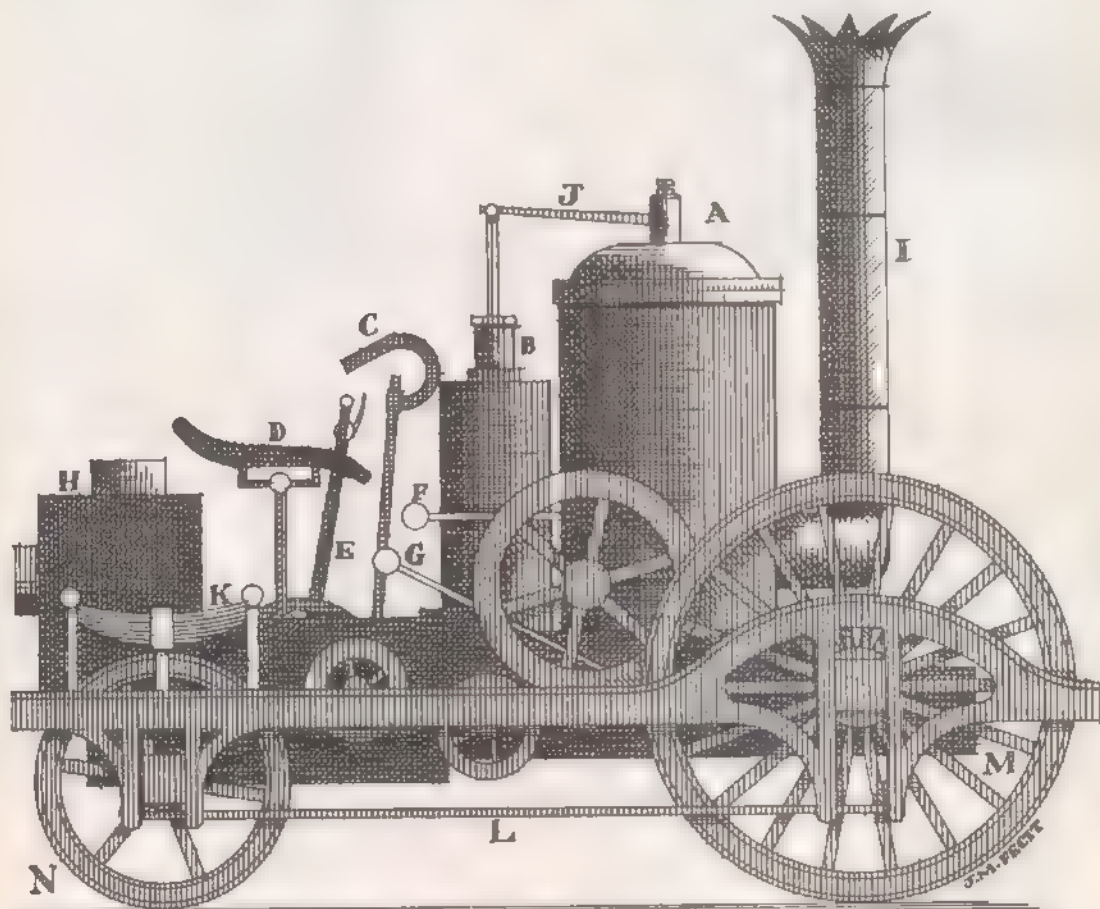
**T**he object of the game is to guide your laser cycle around the screen and to box in your opponent with the trail that you leave behind. Colliding with either your trail, your opponents trail or the wall will cause your destruction! It is either a two player game or you can challenge the computer.

The game itself was written in assembly language with the user interaction at the beginning and end being handled by the Basic. The machine code itself occupies less than half a K, in fact only 440 bytes. It is located just below the model screen between &2C00 and &2E58.

The small piece of code at the beginning, between &0C09 and &0C1E is an

interrupt routine which intercepts the operating systems and if a key has been pressed stores it before returning it to the O.S. routine at &DC93.

When a key is pressed its specific code is stored in &EC, the previous number being pushed into &ED. In this way the keys used can be changed by altering the data at Line 2990.



THE PATENTED LASER CYCLE

```

10UREMark Laser      830LDA&79
11Cycles by Jeremy   840BNEch2
12S. Thornton        850JSR11m
1320FORpass%<QTO    860LDA&75
142STEP2:PZ=<CO9    870BEQokay
1530IOPtPass%       880.ch2
1640PHA             890LDA&89
1750TXA             900STA&D06
1860PHA             910LDA&8A
1970TYA             920STA&D07
2080PHA             930LDA&8B
2190LDA&EC          940STA&D08
22100STA&8E         950LDA&8C
23110LDA&ED         960STA&D09
24120STA&6F         970LDY&7E
25130PLA            980LDA&C03.Y
26140TAY            990STA&7D
27150PLA            1000TAY
28160TAX            1010LDA(&72).Y
29170PLA            1020JSRkeys
30180JMP&DC93       1030.okay
31190RTS:JNEXT      1040JSRsound
32200sword=<FFF1    1050JSRnest
331esurch=<FFEE     1060RTS
34210FORpass%<QTO  1070.input
352STEP2:PZ=<2CEO   1080LDX#2:loop
36220IOPtPass%      1090LDA&8D.X
37230.output        1100LDY#4:loop
38240LDY#0:loop     1110CMP(&72).Y
39250LDA(&70).Y     1120BEQout
40260JSRsearch       1130DEY
41270INY            1140BNEloop2
42280CPY#9          1150DEX:BNELoop
43290BNEloop1       1160BEQover
44300LDA&99         1170.out
45310BEQfast        1180LDX#7C
46320JSRdelay       1190STA&74.X
47330.fast          1200.over
48340LDA&79         1210LDA&7C
49350BNEdead        1220LDA&74.X
50360BEQalive       1230JSRkeys
51370.dead:RTS      1240JSRsound
52380.alive         1250JSRnext
53390LDA&7F         1260RTS
54400BNEcomapp      1270.next
55410JSRinput       1280LDA&7C
56420JMPoutput       1290EOR#1
57430.comapp        1300STA&7C
58440JSRplayer      1310LDA&70
59450JMPoutput       1320EOR#10
60460.player        1330STA&70
61470LDA&7C         1340LDA&72
62480BNElogis       1350EOR#60
63490JMPinput       1360STA&72
64500.logic         1370LDA&77
65510LDA&D06        1380EOR#22
66520STA&89         1390STA&77
67530LDA&D07        1400LDA&7A
68540STA&8A         1410EOR#9
69550LDA&D08        1420STA&7A
70560STA&8B         1430RTS
71570LDA&D09        1440.keys
72580STA&8C         1450.a:LDY#4
73590LDY&7D         1460CMP(&72).Y
74600STY&7E         1470BNEb
75610LDA(&72).Y     1480LDY#0
76620JSRkeys        1490JSRaddition
77630LDA&79         1500.b:DEY
78640BNEch1         1510CMP(&72).Y
79650JSR11m        1520BNEc
80660LDA&75         1530LDY#0
81670BEQokay       1540JSRsubtract
82680.ch1           ion
83690LDA&89        1550.c:DEY
84700STA&D06        1560CMP(&72).Y
85710LDA&8A         1570BNEd
86720STA&D07        1580LDY#2
87730LDA&8B        1590JSRaddition
88740STA&D08        1600.d:DEY
89750LDA&8C        1610CMP(&72).Y
90760STA&D09        1620BNEfin
91770LDY&7E        1630LDY#2
92780LDA&8FF.Y     1640JSRsubtract
93790STA&7D         ion
94800TAY            1650.fin
95810LDA(&72).Y     1660RTS
96820JSRkeys        1670.addition
97830LDA(&77).Y     1680LDA(&77).Y
98840BNEch2        1690CLC
99850JSR11m        1700ADC#4
100860LDA&75       1710STA(&77).Y
101870INY          1720INY
102880LDA(&77).Y   1730LDA(&77).Y
103890ADC#0        1740ADC#0
104900STA(&77).Y   1750STA(&77).Y
105910JSRcheck     1760JSRcheck
106920RTS          1770RTS
107930subtract     1780.subtract
108940LDX#0        1790LDA(&77).Y
109950SEC          1800SEC
110960BC#4        1810BC#4
111970STA(&77).Y   1820STA(&77).Y
112980INY          1830INY
113990LDA(&77).Y   1840LDA(&77).Y
114100BC#0        1850BC#0
115101STA(&77).Y   1860STA(&77).Y
116102JSRcheck     1870JSRcheck
1171880RTS         1890.sound
1181900LDX#7A      1900LDX#7A
1191910LDY#7B      1910LDY#7B
1201920LDA#7       1920LDA#7
1211930JSRword     1930JSRword
1221940LDY#4        1940LDY#4
1231950LDA(&7A).Y   1950LDA(&7A).Y
1241960LDY#8        1960LDY#8
1251970EOR(&7A).Y  1970EOR(&7A).Y
1261980LDY#4        1980LDY#4
1271990STA(&7A).Y  1990STA(&7A).Y
1282000RTS         2010.check
1292020LDX#77       2020LDX#77
1302030LDY#7B       2030LDY#7B
1312040LDA#9        2040LDA#9
1322050JSRword     2050JSRword
1332060LDY#4        2060LDY#4
1342070LDA(&77).Y  2070LDA(&77).Y
1352080STA#79       2080.STA#79
1362090RTS         2100.lie
137210LDA#0         2110LDA#0
1382120STA#75       2120STA#75
1392130LDA#D07      2130LDA#D07
1402140CMP#81       2140CMP#81
1412150BNEbr1       2150BNEbr1
1422160LDA#D06      2160LDA#D06
1432170CMP#80       2170CMP#80
1442180BNEbr1       2180BNEbr1
1452190JNC#75       2190JNC#75
1462200RTS         2210.br1
1472220LDA#D07      2220LDA#D07
1482230CMP#85       2230CMP#85
1492240BNEbr2       2240BNEbr2
1502250LDA#D06      2250LDA#D06
1512260CMP#84       2260CMP#84
1522270BNEbr2       2270BNEbr2
1532280JNC#75       2280JNC#75
1542290RTS         2300.br2
1552310LDA#D09      2310LDA#D09
1562320CMP#63       2320CMP#63
1572330BNEbr3       2330BNEbr3
1582340LDA#D08      2340LDA#D08
1592350CMP#82       2350CMP#82
1602360BNEbr3       2360BNEbr3
1612370JNC#75       2370JNC#75
1622380RTS         2390.br3
1632400LDA#D09      2400LDA#D09
1642410CMP#87       2410CMP#87
1652420BNEbr4       2420BNEbr4
1662430LDA#D08      2430LDA#D08
1672440CMP#86       2440CMP#86
1682450BNEbr4       2450BNEbr4
1692460JNC#75       2460JNC#75
1702470.br4        2470.br4
1712480RTS         2480RTS
1722490.delay       2490.delay
1732500LDX#99       2500LDX#99
1742510.d:loop1     2510.d:loop1
1752520LDY#128      2520LDY#128
1762530.d:loop2     2530.d:loop2
1772540CMP         2540CMP
1782550DEY          2550DEY
1792560BNEd:loop2   2560BNEd:loop2
1802570DEY          2570DEY
1812580BNEd:loop1   2580BNEd:loop1
1822590RTS         2600RTS
1832600RTS:JNEXT   26107&204#9:7&2
18405#C
2620ENVELOPE1,3,0,0,0,0,0,0,121,-10,-5,
-2,120,120:f%<0
2630MODE7:VDU141:PRINTSPC(10)"LASER CY
CLES":VDU141:PRINTSPC(10)"LASER CYCLES"
2640PRINTTAB(4,3)"Will you challenge t
he computer(1) or another human(2)
?"
2650REPEAT:gX=6ET:IFgX=49 OR gX=50 UNTI
L1 ELSE UNTILO
2660IFgX=50 ?&7F=0:PRINT"Red bike:UP=1
DOWN=0 LEFT=Z RIGHT=X":PRINT"Blue
bike:UP=: DOWN=[ LEFT=> RIGHT=?"
2670IFgX=49 ?&7F=1:PRINT"Blue bike:UP=
: DOWN=[ LEFT=> RIGHT=?":REPEAT:INPUT
**"Enter difficulty factor 1-10 easy-ha
rd
fx:IF fx>10 OR fx<1 UNTILO
2675fx=10-fx:fx=f%+4
2690REPEAT:INPUT"Enter speed factor 1-
10 slow-fast "s%:IF s%<1 OR s%>
10 UNTILO
2700UNTIL1:7&99=10-s%
2710PRINT"SPC(10)Press SPACE":REPEA
TUNTILGET=32
2720rX=0:bX=0:REPEAT:MODE1
2730PROCinit
2740VDU19,0,7,0,0,0,0,19,2,4,0,0,0,19,3,5
,0,0,0
2750GCOL0,3:FORYX=0TO1024STEP20:MOVE10,
YX-20:DRAW10,YX:DRAW0,YX:MOVE1270,YX-20:
DRAW1270,YX:DRAW1280,YX:MOVE10,YX:NEXT
2760FORX=0TO1280STEP20:MOVEYX-20,10:DR
AWXX,10:DRAWXX,0:MOVEYX-20,1000:DRAWXX,1
000:DRAWXX,1020:MOVEYX,10:NEXT
2770CALL&2CEO
2780SOUND0,1.5,100:FORIX=0TO15:VDU19,0,
IX,0,0,0:NEXT:VDU19,0,7,0,0,0
2790IF7&70=1COLOUR1:PRINTAB(8,10)"Red
warrior is the victor":rX=rX+1:ELSECOLOU
R2:PRINTAB(8,10)"Blue warrior is the vi
ctor":bX=bX+1
2800COLOUR1:PRINT"SPC(8)"RED=":rX:COLO
UR2:PRINTSPC(8)"BLUE=":bX
2810TIME=0:REPEATUNTILTIME>200
2820COLOUR3:PRINTSPC(4)"Another contest
?"i*FX15,1
2830G=GET
2840IFG<78 PROCinit:UNTILO
2850IFrX>bX COLOUR1:PRINT" Red warri
or is triumphant!"
2860IFrX<bX COLOUR2:PRINT" Blue warri
or is triumphant!"
2870IFrX=bX PRINTSPC(9)"Contest is a dr
aw"
2880END
2890DEFPROCinit
2900RESTORE2980
2910FORIX=0TO19:READ?(&D01+iX):NEXT
2920FORIX=0TO7:READ?(&D20+iX):NEXT
2930FORIX=0TO17:READ?(&D30+iX):NEXT
2940FORIX=0TO14:READ?(&D40+iX):NEXT
2950FORIX=0TO7:READ?(&C00+iX):NEXT
2960FORIX=0TO7:READ?(&80+iX):NEXT
29707&7D=RND(4):7&80=?&80+fX:7&82=?&82+
fX:7&84=?&84-fX:7&86=?&86-fX
2980DATA18,0,1,25,69,127,2,128,1,0,18,0
,2,25,69,128,2,128,2,0
2990DATA144,176,225,194,184,248,231,232
3000DATA0,&,&F8,&FF,4,0,0,0,1,0,0,&F8,&
FF,5,0,0,0,1
3010DATA&0B,&0D,&23,&0D,248,194,0,&10,&
0D,0,&39,&0B,0,3,3
3020DATA3,4,2,1,4,3,1,2
3030DATA11,0,8,0,227,4,232,3
3040ENDPROC

```



## First ADA

**Program** *The ADA Training Course* Price £49.99 Micro Commodore 64 (+Disc Drive) **Supplier** First Software, Unit 20B, Horseshoe Road, Pangbourne, Berks.

There are said to be people who have never heard of ADA. There are also said to be people who wished that they never had.

ADA is the language officially adopted by NATO for use on all real-time systems for the 1980s and beyond, such as command and control systems, communications, and automatic defence.

One of the major problems with ADA is that although most of it has been defined on paper the language is very difficult to implement on existing hardware. In fact the only full implementations of the vital ADA compiler are test versions on very powerful and very secret mainframes.

So, an ADA compiler on the Commodore 64 was not the sort of package I ever expected to see. Who would even think of writing a compiler for a 64K micro when the big boys are having trouble getting it on a mainframe? Volker Sasse of Data Becker (West Germany), that's who... and he's done a good job too.

The software consists of an editor to write the ADA programs, a three-stage compiler (actually two programs) which converts the ADA into assembler language, an assembler for final conversion of the program into machine code, and a disassembler. Both the assembler and disassembler are stand-alone utilities which you can also use for your non-ADA efforts.

As an introduction to the language part of ADA the package works very well. The manual is written clearly, in the main, and takes you step by step through the use of the ADA editor and compiler whilst also guiding you on your first steps into the intricacies of ADA itself. However, although ADA is potentially a very powerful language it is also very complex and the ADA Training Course (translated from the original Ger-

```
10 with TEXT_IOI use TEXT_IOI
20 with COM_64I use COM_64I
30 procedure ADA is
40   NUMBER : FLOAT;
50   N_CALC : FLOAT;
60   TMP_1, TMP_2, TMP_3, TMP_4 : FLOAT;
70 begin
80   SCREEN_CLR;
90   for N in 1..1000 loop
100    NUMBER := FLOAT ( N );
110    if N < 501 then
120     TMP_1 := NUMBER * 5;
130    else
140     TMP_1 := 500;
150    end if;
160    TMP_2 := NUMBER * TMP_1;
170    TMP_3 := LOG ( NUMBER );
180    TMP_4 := TMP_2 * TMP_3;
190    N_CALC := INT ( TMP_4 );
200    NEWLINE;
210    PUT ( N );
220    PUT ( " = " );
230    PUT ( N_CALC );
240    end loop REPT;
250   SCREEN_CLR;
260   PUT ( "FINISHED" );
270 end ADA;
```

man by First Software) falls short of explaining many of the principles of ADA. It tends to concentrate on the workings of the compiler itself. You would be well advised to get hold of an ADA text book as well.

Listed here is an example ADA program which goes round a loop 1000 times and performs one of two simple calculations each time round, printing as it goes.

Note that the individual expressions used are very simple, the compiler cannot even multiply three numbers together in one go. Also note the rather weird form required for line 120. The final compiled program runs rather a little more quickly than a comparable Basic one, though. It is not a particularly good improvement for what is in effect a machine-code program, especially when the Basic program can be optimised to perform the same function in around 95 seconds.

To be fair on ADA though it

is the printing to screen which takes time and the compiler has to call the C64 Kernal for the maths routines and thus produces inefficient code.

To sum up, the ADA Training Course gives a low-level introduction to ADA and provides a very cheap means of gaining vital hands-on experience. The compiler provided offers only a very stripped-down version of the language but is interesting none the less. A lot of disc operations are required to compile a single program, which makes the compiler slow to use, and prone to the usual Commodore disc-loading malaise of hanging up from time to time.

Also, it seems to be very easy for beginners to make mistakes which can appear anywhere.

Interesting but probably for experienced programmers only.

John Cochrane



## Joust a minute

**Program** *Sir Lancelot* Micro CPC 464 Price £6.95 **Supplier** Melbourne House, Castle Yard House, Castle Yard, Richmond TW10 6TF.

The biggest thing Sir Lancelot had going for it on the Spectrum was that it ran in 16K, which was great news for the people who hadn't been driven to upgrade by a dearth of software. It was also very well done, even if the sheer num-

ber of platform games tended to make you cringe at the thought of another.

On the CPC the question of memory is irrelevant, but the fact that it is still well programmed isn't. There is not, as yet, the mind-numbing quantity of such games released for the Amstrad machines and Lancelot is one of the most enjoyable I have played.

The movement and animation are extremely fast and smooth and, despite being in 16 colour mode the graphics avoid looking crude and chunky. All your extra lives

are seen dancing at the bottom of the screen, as in *Manic Miner*, but as each of these is killed off the speed of the remaining sprites increases dramatically, so that by the last life everything on screen is going positively berserk, a bit like old *Space Invaders* games.

There are 24 screens, each of which can be reached directly from screen 1, which will be a very welcome feature for those who are not adept at such games. The only drawback is that, whilst attractive on the colour monitor, it is unplayable on the green screen because of invisible objects, colour clashing etc. This forces you to try and get some time using the TV - a nightmare I'm sure all Amstrad owners are very glad to have left behind.

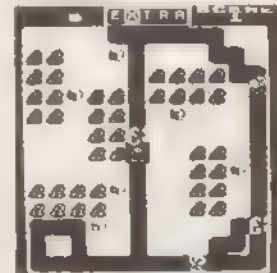
Tony Kendle



## Ee ba gum!

**Program** *Mr EE* Price £6.95 **Micro** BBC B **Supplier** Micro Power Ltd, Sheepscar House, Sheepscar Street South, Leeds LS7 1AD.

Micro Power have another hit game on their hands - why? Because it's an arcade game that's neither impossible to learn nor so easy you leave the cat to play after the first ten minutes - and it has decent music!



True it seems tricky when you read the instructions, but in fact you have to run your character around the screen to eat cherries while avoiding the bad guys or arranging for apples to fall on their heads. (There's nothing dramatically new in the game - *PacMan*'s offspring are everywhere.) You can develop simple, ef-

fective strategies after a few plays. There are - they tell us - ten screens and you can choose to play for a high score or to zip through all the screens at high speed. Sadly there's no hall of fame to allow you to battle with other scores or other people.

You can use keys or joy-

sticks, the sound can be turned off if it drives everyone mad and you can pause to answer the phone. All in all good fun, good value and just the thing to work off energy after the exams.

Dave Watson



## Heads win

**Program Operation Caretaker** Price £9.95 Micro Spectrum/Amstrad **Supplier** Global Software, 33 Shelgate Road, London SW11 1BA.

**A**zimuth adjustment - altering the tape-head alignment to improve leading - seems to be the in thing at the moment.

Following Interceptor's release for the Amstrad a short while ago is this package released by Global.

In the package you get an azimuth adjustment tape, a screwdriver and a head cleaning tape. Unlike the Interceptor product there is no free game with the package.

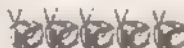
Whilst the logic of the package for Amstrad owners is obvious, indeed essential, I immediately snickered at the idea of a package being released for other machines since they do not have standard tapes and there was no guarantee that the screwdriver would fit at all.

However, I was more impressed when I found that it fitted all five recorders I have access to.

Even if you are unlucky and have to find a screwdriver that fits your deck yourself the software is worth having. The system it uses seems more straightforward than Interceptor's. Instead of having pointers laid out over the tape deck which tell you the extreme angles of the tolerance of the head, Global's package produces a bar chart on screen that tells you when the reading is good or poor. They do admit, though, that for that final 5% accuracy some sort of pointer should be used as well.

The most important point is that I was absolutely stunned by the improvement produced - almost all the blasted turbo loaders I couldn't get to work went in first time - and as an added bonus, your hi-fi will never sound better.

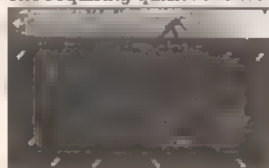
I regard it as an essential purchase. **Tony Kandle**



## Barrels

**Program Gatecrasher** Micro CPC 464 Price £8.95 **Supplier** Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex, CM14 4EF.

**T**his is a conversion of a game released by Quicksilver for almost every machine that was around at the time. It is more of a logic testing game than one requiring quick reflexes.



The object is to roll barrels down various holes in the

ground so that they follow the ledges and gates and arrive in containers at the bottom.

The idea is to fill the nine boxes with one barrel each, although the objectives get more complex as the game progresses. The game therefore relies on you choosing the correct hole to let your barrel off.

As it hits one of the gates the gate spins to face in a different direction, causing subsequent barrels to rebound in different ways. You can scroll the ledges in an attempt to make things connect in the way you want, or if things are really hopeless you can cause an earthquake that can disturb all the gates.

It's an easier game to play, or at least to get into, than it is to describe. It becomes very much a 'just one more go' or 'I'll just finish this screen' ses-

## Dancin'

**Program Ghetto Blaster** Price £8.95 Micro Commodore 64 **Supplier** Virgin Games Ltd., 2-4 Vernon Yard, 119 Portobello Road, London W11 2DX.

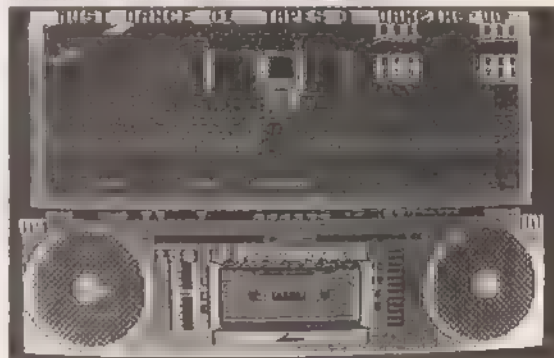
**V**irgin's latest release, *Ghetto Blaster*, is just what you would expect from one of the country's leading record companies - a game based on music.

All the action revolves around Rockin' Rodney and his "powerful playback" ghetto blaster. He has got himself a job as messenger for the record company Interdisc. On this particular day, he has to collect ten demo-tapes from around the town and deliver them to Interdisc's main office on

Funky Street. It's also part of Rodney's job to "turn the locals on" to his sounds and get them dancing. There's a map included with the instructions showing all the streets in Funkytown and believe me, it comes in very useful. While Rodney patrols the streets he has to avoid some pretty mean dudes like the tone-deaf walkers and the gangsters of the groove.

The main feature of this program is the funky soundtrack with its twelve separate tunes, which is certainly very good. The thing that caught my eye was the layout and presentation of the game. Both were excellent. However, I'm not so sure about the 'lastability' of *Ghetto Blaster*. Still, it's an original idea for a game.

Tom Huxley



sion and you could easily sit up until the small hours with it. A refreshingly original game.

**Tony Kandle**



## Assassin

**Program Assassin** Price £9.95 cassette, £11.95 disc - 40 or 80 track. **Micro BBC Supplier** Robico Software, 3 Fairland Close, Llantrisant, Mid-Glamorgan CF7 8QH.

**H**ow good it is to find an adventure game with style and quality. Robico produce some nifty numbers and *Assassin* is first rate.

It is a text adventure in which you play Nick Hanson, special agent, and your first task is to discover your task!

As you travel through a beautifully described landscape starting in a decaying railway station, you receive instructions in a variety of ways. You're always in danger of being bumped off yourself - so it pays to be careful and quick.

The text compression system is efficient and the game understands quite tricky commands. You can combine two commands in one sentence - an advance most adventurers will appreciate. Sensible options include coloured text or b/w, a chance to save the game and a helpful command list.

Best of all there's no sense of being cheated... unlike other adventures where random chances and downright perversity often rule.

Jan Watterson





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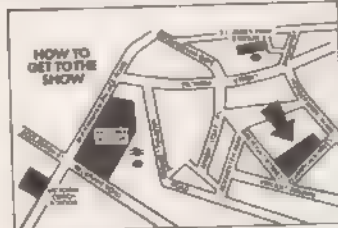
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## CBM 64

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44 Keys - Space Bar - QWERTY Layout  
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## Memory breakdown

Check your memory on the QL with this multi-tasking utility written by John Lawlor

This is a multitasking job for the QL called *Systat*. The job gives a complete memory usage breakdown with a couple of novel features - use of the function keys to activate/deactivate the output and the restoration of the original screen contents upon deactivation, which considerably enhances the QL's windowing ability.

Information output includes Resident Procedure Area, Transient Program Area, Superbasic Area, Channels/Heaps Area, Resource Management/System Variables Area, Immediate Free Space, Total Memory Usage. Largest Available Transient Program Area and Largest Available Heap Space.

The first seven of these are calculable from Basic but the last two are only accessible via system traps and hence need machine code. Use of the program provides a useful insight into how QDOS executes memory management and is extremely useful when those 'Out of Memory' messages appear when trying to load multitasking programs which require Heap space.

The loader is fairly self-explanatory and, due to the large amount of Data statements, includes comprehensive error checking after every 16 bytes. A very important point which is not documented anywhere is that the minimum data space you should allocate to a multitasking job appears to be about 256 bytes (line 1078). I first imagined that QDOS would require only enough room

to save the registers, say 128 bytes. However, if you try altering the 256 to, say, 128 bytes, then *Systat* will apparently run perfectly - now do a *New* and after a few operations the QL will crash, sometimes giving an unstoppable ASCII dump of the Rom from address 0! The extra Data space must be for channel ID's etc, while a *New* is occurring.

After a successful loading a small window is opened in the top left hand corner of the screen containing the message 'F1 to Activate'. At this stage the program is running at the lowest possible priority - 1/127. Upon pressing function key 'F1' three things happen:

- 1) The priority is increased to 64/127.
- 2) The contents of the screen where the main window will be opened are copied into a Heap area for eventual restoration. This enhances the windowing features of the QL by leaving the screen intact after the job has been deactivated. If there is insufficient Heap space available then a warning message to this effect will be printed in the main screen window.
- 3) The main screen output window is opened.

Output now commences with the Resident Procedure Area, the Transient Program Area, the Basic area, the channels/heaps area (any area allocated for the screen save will be deducted as this is released upon deactivation), the resource management/system variable area, the immediate free space (SV-BASIC-SV-FREE) and the total memory used

including the screen but ignoring the temporary screen save area. The next statement is the largest available Transient Program area (MT-FREE, TRAP#1, DO=6) - note that this space is not necessarily there at the moment. The last parameter, the largest available heap area, uses MT-ALCHP - Trap#1, DO=18 and attempts to obtain a heap area progressing from 592K (for those with the full 640K memory) in 1K steps until no error occurs. At this point *Systat* decides if the area allocated is larger than the screen save area - if a screen save occurred, and also whether they are contiguous before deciding the largest available area. The heap space is then removed.

Finally, the message 'F5 to Deactivate' appears; upon deactivation *Systat* restores the screen contents (if they were saved) releasing the Heap area used, restores its own priority to 1/127 and returns to waiting for F1 to be pressed.

*Systat* as listed works in monitor Mode 4 but will also work in Mode 8 if you use <CTRL>F5 to control screen scrolling. If you wish to patch the loader for TV mode, ie, move the output windows away from the origin 0,0 then answer 'Y' to the patch prompt and follow the instructions.

Once you start using *Systat* you will notice that QDOS lets the memory fill right up before doing any pruning. For instance, load and then remove a Transient Program and note that the space is still allocated, ie, it isn't released as microdrive buffer storage! Memory reorganisation only occurs when something drastic happens such as a *New*, reset or memory overflow - and even then it will still sometimes persist with Out of Memory messages when you know better!

```

1000 REMARK Systat Loader
1002 @-RESP#(1296)
1004 RESTORE 1211
1006 offset=0
1008 FOR n=1 TO 67
1010   chksum=0
1012   FOR m=1 TO 16
1014     READ byte
1016     POKE a+offset,byte
1018     offset=offset+1
1020     chksum=chksum+byte
1022   END FOR m
1024   READ chk
1026   IF chk<>chksum THEN PRINT "**** ERROR - Data Line 12"
1028 END FOR n
1030 FOR n=1 TO 12
1032   READ byte
1034   POKE a+offset,byte
1036   offset=offset+1
1038 END FOR n
1040 FOR n=1 TO 12
1042   READ length
1044   POKE a+offset,length
1046   offset=offset+2
1048   READ message$
1050   FOR m=1 TO length
1052     POKE a+offset,CODE(message$(m))
1054     offset=offset+1
1056   END FOR m
1058 END FOR n
1060 chksum=0
1062 FOR n=1 TO 64
1064   READ byte
1066   chksum=chksum+byte
1068   POKE a+offset,byte
1070   offset=offset+1
1072 END FOR n
1074 READ chk
1076 IF chk<>chksum THEN PRINT "**** ERROR in final data statements" STOP
1078 PATCH
1080 SEXEC MDVI_systat,e,1296,256
1082 EXEC MDVI_systat
1211 DATA 96,14,0,0,0,74,231,0,6,83,89,83,84,63,84,929
1212 DATA 114,255,116,1,112,11,78,65,67,250,3,32,52,120,0,2
1213 DATA 78,146,67,250,3,54,92,120,0,208,78,146,71,250,4,2
1214 DATA 38,188,9,1,0,0,18,60,0,0,66,107,0,4,23,63,579
1215 DATA 0,6,23,124,0,2,0,7,112,17,78,65,12,1,0,2,449
1216 DATA 102,218,114,255,116,64,112,11,78,65,116,250,34,60
1217 DATA 35,48,112,24,78,65,67,250,4,104,74,128,103,6,18,1
1218 DATA 0,0,96,42,18,188,0,1,73,250,3,90,40,156,56,124,
1219 DATA 0,2,0,0,52,60,0,139,54,80,0,13,32,210,68,138,850
1220 DATA 81,203,255,250,213,252,0,0,64,81,202,255,236,67
1221 DATA 2,236,52,120,0,200,78,146,47,8,67,250,4,96,12,17,
1222 DATA 0,1,103,14,52,120,0,208,67,250,2,220,78,146,97,0,
1223 DATA 2,40,67,250,2,234,52,120,0,208,78,146,157,206,34,
1224 DATA 0,2,128,32,146,185,0,2,128,38,44,65,97,0,2,20,879
1225 DATA 32,87,97,0,1,340,67,250,2,226,32,120,0,208,78,146,
1226 DATA 34,57,0,2,128,28,146,185,0,3,128,20,221,193,97,0,
1227 DATA 1,243,97,0,1,208,67,250,2,222,52,120,0,208,78,146,
1228 DATA 34,57,0,2,128,20,146,185,0,2,128,16,221,193,97,0,

```





## Graphic notes

Experiment with sound for your games using this utility by Andrew Esmond

The Commodore 64 has, in its SID chip, one of the best sound chips available on a home computer. However, due to the wisdom of Commodore, the SID can only be accessed by the Poke command, needing at least six commands to bleep, let alone perform some of its more complicated functions. Using these Pokes once an effect has been worked out is tolerable; however, for experimenting, this system is almost impossible.

The program listed here takes some of the effort out of experimenting by allowing the various envelopes values to be graphically displayed and altered using a couple of keystrokes.

When the program initially runs, a bar chart is displayed which illustrates the attack, decay, sustain and release values for all three voices: attack in green, decay in red, sustain in yellow and release in blue. Below this the type of waveform, note frequency and pulse frequency (for the pulse waveform) are displayed. The volume is shown at the top of the screen below the status line which shows which voice is being played or used.

The Play screen is very simple. On pressing P for play, you are asked which voice you wish to play; press 1, 2, 3 or A

(all). The voice is then played. The Alter section is slightly more complicated. The initials presented stand for: A-attack; D-decay; S-sustain; R-release; F-frequency; P-pulse frequency; W-waveform; V-volume; X-exit to main program. The A,D,S and R alterations are carried out by pressing + or - to increment or decrement the respective value(s). X exits to the alteration choice menu.

The frequency and pulse frequencies are input using the Basic input statement. Take care not to hit Return without entering a number as this will upset the display. The range of values for frequency are 0-65535 and 0-4095 for pulse frequency (Hz). The volume is altered in the same way, values for 0-15 are allowed. The wave form is altered by pressing the initial letter of the waveform you want, the abbreviations are Trian-triangular waveform, Swath-sawtooth waveform, Pulse-pulse waveform. The frequency for the pulses can be altered to any value between 0-4095. Noise is the white noise waveform.

## Program Notes

100-230

Initialises the main variables and sets the screen colours.

900-960

Sets up a trial set of

1000-1190

1200-1310

2000-2280

3000-3180

3200-3350

3400-3530

3600-3740

3800-3940

4000-4080

4100-4190

4200-4330

4400-4430

5000

6000-6020

10000-10010

values to test the display routine, delete this when you are sure it is working.

Displays the values and draw the graph.

Choice selection and execution.

This is the routine to play an effect.

The various alteration routines are called from here.

This is the routine to alter the attack. Part of this routine (3280-3290) is used to alter the on-screen graph and is called by the other routines.

This alters the decay.

This alters the sustain.

This alters the release.

This section inputs and checks a new value for the frequency.

This section inputs and checks a new value for the pulse frequency.

This routine is used for changing the waveform.

Inputs and checks the new volume level.

A message used for the alter routine.

This just clears the bottom two screen lines.

This clears the sound registers.

```

100 REM ***** SOUND EFFECT *****
110 REM ***** ANDREW ESMOND *****
120 FOR I=32000 TO 65535:POKE I,0:PRINT "END"
130 POKE 1023,0:POKE 1024,0:POKE 1025,0:POKE 1026,0:POKE 1027,0:POKE 1028,0:POKE 1029,0:POKE 1030,0:POKE 1031,0:POKE 1032,0:POKE 1033,0:POKE 1034,0:POKE 1035,0:POKE 1036,0:POKE 1037,0:POKE 1038,0:POKE 1039,0:POKE 1040,0:POKE 1041,0:POKE 1042,0:POKE 1043,0:POKE 1044,0:POKE 1045,0:POKE 1046,0:POKE 1047,0:POKE 1048,0:POKE 1049,0:POKE 1050,0:POKE 1051,0:POKE 1052,0:POKE 1053,0:POKE 1054,0:POKE 1055,0:POKE 1056,0:POKE 1057,0:POKE 1058,0:POKE 1059,0:POKE 1060,0:POKE 1061,0:POKE 1062,0:POKE 1063,0:POKE 1064,0:POKE 1065,0:POKE 1066,0:POKE 1067,0:POKE 1068,0:POKE 1069,0:POKE 1070,0:POKE 1071,0:POKE 1072,0:POKE 1073,0:POKE 1074,0:POKE 1075,0:POKE 1076,0:POKE 1077,0:POKE 1078,0:POKE 1079,0:POKE 1080,0:POKE 1081,0:POKE 1082,0:POKE 1083,0:POKE 1084,0:POKE 1085,0:POKE 1086,0:POKE 1087,0:POKE 1088,0:POKE 1089,0:POKE 1090,0:POKE 1091,0:POKE 1092,0:POKE 1093,0:POKE 1094,0:POKE 1095,0:POKE 1096,0:POKE 1097,0:POKE 1098,0:POKE 1099,0:POKE 1100,0:POKE 1101,0:POKE 1102,0:POKE 1103,0:POKE 1104,0:POKE 1105,0:POKE 1106,0:POKE 1107,0:POKE 1108,0:POKE 1109,0:POKE 1110,0:POKE 1111,0:POKE 1112,0:POKE 1113,0:POKE 1114,0:POKE 1115,0:POKE 1116,0:POKE 1117,0:POKE 1118,0:POKE 1119,0:POKE 1120,0:POKE 1121,0:POKE 1122,0:POKE 1123,0:POKE 1124,0:POKE 1125,0:POKE 1126,0:POKE 1127,0:POKE 1128,0:POKE 1129,0:POKE 1130,0:POKE 1131,0:POKE 1132,0:POKE 1133,0:POKE 1134,0:POKE 1135,0:POKE 1136,0:POKE 1137,0:POKE 1138,0:POKE 1139,0:POKE 1140,0:POKE 1141,0:POKE 1142,0:POKE 1143,0:POKE 1144,0:POKE 1145,0:POKE 1146,0:POKE 1147,0:POKE 1148,0:POKE 1149,0:POKE 1150,0:POKE 1151,0:POKE 1152,0:POKE 1153,0:POKE 1154,0:POKE 1155,0:POKE 1156,0:POKE 1157,0:POKE 1158,0:POKE 1159,0:POKE 1160,0:POKE 1161,0:POKE 1162,0:POKE 1163,0:POKE 1164,0:POKE 1165,0:POKE 1166,0:POKE 1167,0:POKE 1168,0:POKE 1169,0:POKE 1170,0:POKE 1171,0:POKE 1172,0:POKE 1173,0:POKE 1174,0:POKE 1175,0:POKE 1176,0:POKE 1177,0:POKE 1178,0:POKE 1179,0:POKE 1180,0:POKE 1181,0:POKE 1182,0:POKE 1183,0:POKE 1184,0:POKE 1185,0:POKE 1186,0:POKE 1187,0:POKE 1188,0:POKE 1189,0:POKE 1190,0:POKE 1191,0:POKE 1192,0:POKE 1193,0:POKE 1194,0:POKE 1195,0:POKE 1196,0:POKE 1197,0:POKE 1198,0:POKE 1199,0:POKE 1200,0:POKE 1201,0:POKE 1202,0:POKE 1203,0:POKE 1204,0:POKE 1205,0:POKE 1206,0:POKE 1207,0:POKE 1208,0:POKE 1209,0:POKE 1210,0:POKE 1211,0:POKE 1212,0:POKE 1213,0:POKE 1214,0:POKE 1215,0:POKE 1216,0:POKE 1217,0:POKE 1218,0:POKE 1219,0:POKE 1220,0:POKE 1221,0:POKE 1222,0:POKE 1223,0:POKE 1224,0:POKE 1225,0:POKE 1226,0:POKE 1227,0:POKE 1228,0:POKE 1229,0:POKE 1230,0:POKE 1231,0:POKE 1232,0:POKE 1233,0:POKE 1234,0:POKE 1235,0:POKE 1236,0:POKE 1237,0:POKE 1238,0:POKE 1239,0:POKE 1240,0:POKE 1241,0:POKE 1242,0:POKE 1243,0:POKE 1244,0:POKE 1245,0:POKE 1246,0:POKE 1247,0:POKE 1248,0:POKE 1249,0:POKE 1250,0:POKE 1251,0:POKE 1252,0:POKE 1253,0:POKE 1254,0:POKE 1255,0:POKE 1256,0:POKE 1257,0:POKE 1258,0:POKE 1259,0:POKE 1260,0:POKE 1261,0:POKE 1262,0:POKE 1263,0:POKE 1264,0:POKE 1265,0:POKE 1266,0:POKE 1267,0:POKE 1268,0:POKE 1269,0:POKE 1270,0:POKE 1271,0:POKE 1272,0:POKE 1273,0:POKE 1274,0:POKE 1275,0:POKE 1276,0:POKE 1277,0:POKE 1278,0:POKE 1279,0:POKE 1280,0:POKE 1281,0:POKE 1282,0:POKE 1283,0:POKE 1284,0:POKE 1285,0:POKE 1286,0:POKE 1287,0:POKE 1288,0:POKE 1289,0:POKE 1290,0:POKE 1291,0:POKE 1292,0:POKE 1293,0:POKE 1294,0:POKE 1295,0:POKE 1296,0:POKE 1297,0:POKE 1298,0:POKE 1299,0:POKE 1300,0:POKE 1301,0:POKE 1302,0:POKE 1303,0:POKE 1304,0:POKE 1305,0:POKE 1306,0:POKE 1307,0:POKE 1308,0:POKE 1309,0:POKE 1310,0:POKE 1311,0:POKE 1312,0:POKE 1313,0:POKE 1314,0:POKE 1315,0:POKE 1316,0:POKE 1317,0:POKE 1318,0:POKE 1319,0:POKE 1320,0:POKE 1321,0:POKE 1322,0:POKE 1323,0:POKE 1324,0:POKE 1325,0:POKE 1326,0:POKE 1327,0:POKE 1328,0:POKE 1329,0:POKE 1330,0:POKE 1331,0:POKE 1332,0:POKE 1333,0:POKE 1334,0:POKE 1335,0:POKE 1336,0:POKE 1337,0:POKE 1338,0:POKE 1339,0:POKE 1340,0:POKE 1341,0:POKE 1342,0:POKE 1343,0:POKE 1344,0:POKE 1345,0:POKE 1346,0:POKE 1347,0:POKE 1348,0:POKE 1349,0:POKE 1350,0:POKE 1351,0:POKE 1352,0:POKE 1353,0:POKE 1354,0:POKE 1355,0:POKE 1356,0:POKE 1357,0:POKE 1358,0:POKE 1359,0:POKE 1360,0:POKE 1361,0:POKE 1362,0:POKE 1363,0:POKE 1364,0:POKE 1365,0:POKE 1366,0:POKE 1367,0:POKE 1368,0:POKE 1369,0:POKE 1370,0:POKE 1371,0:POKE 1372,0:POKE 1373,0:POKE 1374,0:POKE 1375,0:POKE 1376,0:POKE 1377,0:POKE 1378,0:POKE 1379,0:POKE 1380,0:POKE 1381,0:POKE 1382,0:POKE 1383,0:POKE 1384,0:POKE 1385,0:POKE 1386,0:POKE 1387,0:POKE 1388,0:POKE 1389,0:POKE 1390,0:POKE 1391,0:POKE 1392,0:POKE 1393,0:POKE 1394,0:POKE 1395,0:POKE 1396,0:POKE 1397,0:POKE 1398,0:POKE 1399,0:POKE 1400,0:POKE 1401,0:POKE 1402,0:POKE 1403,0:POKE 1404,0:POKE 1405,0:POKE 1406,0:POKE 1407,0:POKE 1408,0:POKE 1409,0:POKE 1410,0:POKE 1411,0:POKE 1412,0:POKE 1413,0:POKE 1414,0:POKE 1415,0:POKE 1416,0:POKE 1417,0:POKE 1418,0:POKE 1419,0:POKE 1420,0:POKE 1421,0:POKE 1422,0:POKE 1423,0:POKE 1424,0:POKE 1425,0:POKE 1426,0:POKE 1427,0:POKE 1428,0:POKE 1429,0:POKE 1430,0:POKE 1431,0:POKE 1432,0:POKE 1433,0:POKE 1434,0:POKE 1435,0:POKE 1436,0:POKE 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# Private function

Program your own function keys on the Amstrad with this routine from **John Hurst**

One of the many clever features of the Amstrad is its ability to support Function Keys. The keys in question are those on the numeric pad, to the right of the main keyboard. By using the "Key Def" command (as described in Chapter 8, p23 of the Manual), one can re-assign these keys, so as to make them carry out quite complicated manoeuvres. This can be particularly useful when writing a Basic program: there are a lot of commands, which get used over and over again, and it is a tremendous convenience to be able to carry them out with a single key-stroke, rather than to type them in individually in full.

Of course, everyone has his, or her own list of pet functions, but the list given here is the result of some considerable time spent programming on the 464. I keep the program which loads them on a cassette of its own, and load this before every session, so that the keypad is always primed with the special functions.

The list of functions is given in Fig 1, which shows their distribution on the key-pad. Fig 2 is the Basic program listing to implement them. Here's a breakdown of what they are each designed to do:

"ENTER" is left alone and not re-programmed. It does "ENTER" when used normally and a "LOAD & RUN", when used with CTRL.

"1" gives Cls:List. You are always needing to List a program under construction, when it has been changed, or had a line added. This particular setting does not allow a line to be specified, as the "Chr\$(13)" in the function ensures that the new function executes itself.

"0" gives Run. Another obvious must. These last two commands, I find, are the most commonly used, which is why they are assigned to the two keys next to enter.

"7" gives Chr\$( - but obviously doesn't execute. The idea is to use it in combination with Key 8 (giving ")"), so that one can insert Chr\$(xx), with the minimum fuss.

"9" gives &. This is used when compiling Data lists - if, like me, you tend to use Hex notation when preparing User Defined characters, with the help of Symbol (Ch.8 p46 of the Manual). This key setting makes it very easy to write: &00,&FF,&F0,&0F etc, etc.

"4" gives ", ". Also used for Data lists, this time for strings - as in, "Peter", "Ann", "David". The Function has to be written using Chr\$(34), as the double quote otherwise gets the Basic in a muddle.

"5" gives -, and for the reason in the paragraph above, this is chosen to give a printed double quote.

"1" gives Auto. It is not allowed to execute, as you usually want to specify the line number - almost invariably the next line number of the program. Somewhere in the Basic must be hidden the value of the existing last line of the program, so that one ought to be able to get the Function to discover its own "next line" number.

"2" gives Edit. Again, this is an obvious function to have on the pad, when writing a program. Like Auto: the function incorporates a space at the end, so that it is possible to type in directly the

line number you want to edit.

Two further lines are added to the Key Def program. At Line 100 Width 32 which is only useful if you have a printer, as it sets the line length used. I have a roll of 3½ inch cash register paper permanently fed into my Brother M-1009 for scratch print-outs, and this setting just fits the roll. The paper is held in an adapted toilet roll holder, but this is not meant to be a reflection on the value of the software.

Finally, the last line of the program is New. This effectively clears the decks for another Basic program, but leaves all the newly defined Functions in place. Obviously, the selection given here doesn't end the possibilities for the Function keys. Two keys have not yet been assigned; you may want to add some more commands, or change the ones I have suggested. But having your own cassette for loading before you do any programming, is a very worthwhile investment.

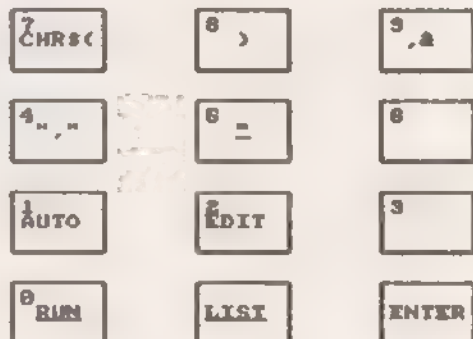


Fig. 1

## "KEY DEF" LISTING

```
10 KEY 128,"run"+CHR$(13)
20 KEY 129,"auto "
30 KEY 130,"edit "
40 KEY 132,CHR$(34)+CHR$(44)+CHR$(34)
50 KEY 133,CHR$(34)+";chr$(34);"+CHR$(34)
60 KEY 135,"chr$(("
70 KEY 136,")"
80 KEY 137,".,&"
90 KEY 138,"cls:list"+CHR$(13)
100 WIDTH 32
110 NEW
```

Fig. 2



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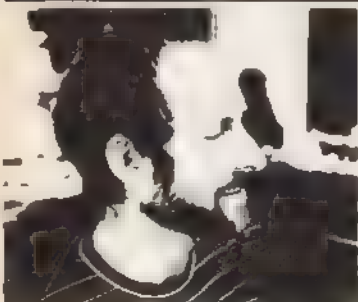
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# Tony Bridge's Adventure Corner



## Faithful following

**A**rrow of Death, from Adventure International seems to have had a very faithful following over the last few months, and I'm not surprised, as it has quite a lot of atmosphere, despite the usual syntax problems that Brian Howarth programs display - the players spends much of the time searching for the right combination of words, and to me that's daft. The *Daily Telegraph* or *Times* both have better crosswords if that's what you're after!

However, *Arrow*, as I've said, does keep the interest alive, and most of the problems holding people up are to do with getting into the Giant's Building, without being killed (well, you didn't think that this was going to be easy, did you?). Of course, before going into the Castle, wouldn't it be best to nobble the Giants? To do this, take the Toadstools from the Clearing and add them to the Broth in the Cookhouse Cauldron - just type "Poison (or Drug) Broth". This will put the Giants to sleep and allow you to proceed unhindered. The problem of the Guardians by the Sacred Willow is solved by throwing the Medallion - you should then cut the branch.

In pursuit of Trivia No. 1: Go West is, as you'll know, a phrase which adventurers will have used many times - it's also, of course, now better known to the world at large as the name of one of the latest successful groups. One of the two guys who make up the band, Richard Cox and Peter Drummie (I'm not sure which), is a keen Beeb user and adventurer - when a name for the group had to be found, what else could it be? Go West, young man!

Now back to the most enduring adven-

ture of them all, *Colossal Adventure* to give it just one of the names by which it is known. It is, whatever the name, the original and classic game as implemented on the huge mainframes of several years ago. It is classic, not only because it was the first and probably best-known, but also because the problems contained therein display a neat simplicity that has remained unsurpassed.

There are several versions for home micros, probably the best, for us British adventurers, that from Level 9, boasting as it does a lengthy end-game not featured in the original. The problems in the first part are, in most respects, the same as the original, and most of the versions available are much the same as each other, differing only in the wording needed to solve the problems. A major difference, however, is found in the Abersoft version, now marketed by Melbourne House as *Classic Adventure*. The first problem in the adventure is how to get past the snake - the solution has been revealed about 54 times in various places, so I will not be giving anything away by saying that you must first get the Bird (how? Well, that is another sticky problem, but let's say that birds in this cave system are rather tame except when they see Black Rods!), and then release it in the presence of the old snake, which takes fright and slithers off. Abersoft, rather humourlessly, think that the snake will eat the bird.

As evidence that the problems are as tough as ever, I still get many letters regarding *Classic Adventure*, whatever the version is called. "I can get across the fissure, but the only place I can get to from there is where Batteries are for sale. Please help!" So says G S Kewin of The Isle of Man. The vending machine is in the Different Maze, and, as you have found, contains batteries for your lamp, and you'll need a coin to feed into the machine. To get out of the Maze from the Vending machine, go North and Up. You should be back in the West end of the Long Passage. Now go East, then North, North and Up - this will bring you to the Slab Room, and from there quite a few locations will become open to you. Of course, you can go to other places from the Maze - nearby is another Maze, this one being of rooms all the same, which contains the Pirate's Chest. Bill from Knottingley was encouraged to try *Co-*

lossal Adventure and has done quite well - up to a point. "What do I do with the Gazette, where is the Pirate's Maze, how do I get my treasure back when he pinches it?" You should know the answer to most of your questions now, Bill - the Gazette, which is found not far from the Slab Room mentioned before, can of course be read, but can also be left in the next location (Witt's End) for extra points. But beware, it's not easy to leave once in there, though repeatedly typing South should do the trick.

In his recent letter, Dave Chapman of Timperley also mentions *Colossal Adventure*: "On writing to Level 9 for a free clue, which together with help from The Corner enabled me to complete the game, I commented that I thought having four mazes in one game was a bit much, and also wondered why one should have to go back to the start of the first part when failing the second - Level 9 wrote back to say 'are you playing *Colossal*?' Overall, though, I thought that *Colossal* was good, and I look forward to trying Level 9's next tape."

I agree that four mazes is pouring on the agony a little, and I'm not a fan of mazes anyway - but there are many adventurers who revel in the challenge. As for going back to the very start - well, it shows you the importance of saving your position before any drastic decision. Dave goes on to say: "I must mention *Knights Quest*, one of your favourites. I have arrived at the point where the Eagle attacks you after rescuing the Princess, but have been unable to get any further - the game now gathers dust, but I would still rate this as one of the best adventures for the Spectrum. Can you help me with CCS's *The Prince*? The game loads properly, but the problem is that only Ferrardo of the main characters will carry out his specific duties."

I have never had the pleasure of seeing this game, though it appeared as a listing in an issue of *Sinclair User* some months ago. Try writing to them for a back issue, and you might then be able to alter the code. But of course, you should not be expected to do CCS's work for them. Dave also says that he has completed *Planet of Death* and *Urban Upstart*, both of which he liked. The eagle problem in *Knights Quest* is rather complex - but the outcome of the attack depends on which weapon you use to defend yourself. If you use the Sword, you will be taken to the eagle's eyrie, which is actually no bad thing. If you have found the Diamond spear in the Castle of Clouds, then you have a dead eagle.

In pursuit of Trivia, No. 2: passing an off-licence the other day (a momentous event in itself), the Grand Elf was amazed to see a bottle of wine displayed, with the label bearing the proud legend "Thorin"! For a mere £2.50 or so, that's good value for a wine that will sing to you about Gold.

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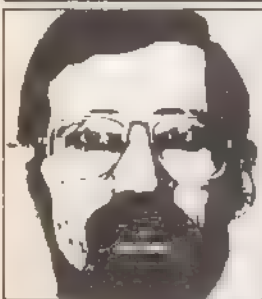
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## On the market

David Fox of Sheffield, writes:

**Q** How do I go about selling my own programs? I have a computer and I have made some of my own games which I feel wouldn't do too bad if marketed under my name. What do I do?

**A** Firstly, you will have to sell by mail order. You are unlikely to attract any of the large retailers, at least until you have established some sort of reputation. Secondly, you will have to obtain some means of duplicating your software (some form of tape copier would be best). It is probably not worth your while getting tape insets or labels produced, owing to the small quantities that you are likely to need (at least initially).

Lastly, you will need to advertise in magazines, so that the world can be told of your products. Your prices should be realistic... don't price your games as high as the retail products - people won't buy.

## Freezed computer

Angus Ross, of Norwich, writes:

**Q** One of the more irritating habits of my QL, which I use principally for word processing with *Quill*, is its habit of freezing occasionally for no apparent reason. One of the sources of unreliability with *Quill* is certainly the microdrive, but they do not seem to be the culprit here. Could the problem be spikes in the mains supply? *QL User*

magazine recently carried a story about a device from Power International that claimed to eliminate the problem. Is there any reason to believe the QL to be more sensitive to spikes in the mains than any other home computers? I have never had this problem with my Vic 20.

**A** A 'freezing' computer... this symptom is usually caused by one of three things: (a) a bug in the software, (b) a faulty machine, (c) a sudden peak or low in the power supply.

I find the last one harder to believe in your case than the first two.

As you say you always use *Quill*, do you never have this problem when using other software on the QL? The power supply would seem to be OK, because, as you say, you have never experienced problems with your other computer.

One thing you do not mention is how long after switching on it is before you get your problem. A common problem with home computers is their uncanny knack of suddenly going 'dead' after about an hour of trouble free use.

My advice would be to try other software on the QL and see if the problem still occurs. If it does not then I suggest that you contact the shop/dealer who sold you the machine and arrange for it to be repaired.

## Spectrum recorder

J. Mailey of Kings Lynn, writes:

**Q** I am going to buy a Spectrum + and want to know if there is any cassette recorder recommended to be used with it. If so are there any special leads required?

**A** Any cassette recorder with 2.5mm earphone and microphone sockets should work with the Spectrum +. Ordinary mono recorders tend to give better results than stereo ones. A tape counter is an extremely useful feature to have, so that you can locate programs on a long tape.

There are a number of so called 'computer compatible' recorders on the market which do indeed give good results. The best advice is to shop around and get the best deal you can.

You will not need to get any special leads as the Spectrum comes complete with the necessary connections, etc.

## Slow disc drive

K. Ebberley of Manchester, writes:

**Q** I have a Commodore 64 and am extremely happy with it except for one thing, the disc drive is extremely slow. Is there any way of speeding the thing up?

**A** Ah... you've noticed then that the manufacturer who brought you the elephant that never forgets, also brought you the disc drive that reads just about as fast as one!

In defence of Commodore, however, it is fair to say that their disc drives are comparatively cheap, and as is always the case, you pay your money and you take your choice.

There is unfortunately nothing that can really be done to speed them up; they are just built that way.

## Forth alternative?

D. Rise of Bournemouth, writes:

**Q** I have a Sinclair Spectrum, and am very interested in programming. I have learned and mastered Basic, and want to move on to something more demanding. A friend suggested Forth as an alternative to machine code. Do you think that this is a good idea and can you recommend a good package?

**A** As far as recommending a good package is concerned, I need go no further than Abersoft Forth, which is widely accepted as about the best, cheap (£15.00) version available. As to whether I think that using Forth is a good idea, it depends.

If your purpose is to experiment with programming techniques, and to build up your own programs for purely personal use, then Forth is a good idea. If however you want to write programs for sale, then I would suggest machine code. I say that not because Forth is an inferior language, but because it usually requires the interpreter software to be in memory when it loads. This would, of course, bring copyright problems.

## Unlimited lives

Nicola Lauranson of Newton-le-Willows, Merseyside, writes:

**Q** For Christmas I received a CBM 64, I also received a tape called *Manic Miner*. So far I haven't got farther than Room 1. While reading a back issue of *Popular*, I saw a set of *Pokes* compatible with the Spectrum version. Is there a set of codes on the CBM that will enable me to get into any room I like? I'm desperate!

**A** In Vol 4 No 1 Tony Kendle (Arcade Avenue) printed just the things you need to know. As I know the feeling well of trying to get past that stupid creature and those silly flowers... here are the *Pokes*: Type, *Verify* (return), *Load* (""), *I* (return and play), *Poke* 16573,234 (return), *Poke* 16572,234 (return), *Poke* 16571,234 (return), *Sys* 16394 (return).

These *Pokes* give you unlimited lives, which should give you enough time to work out how to finish each room.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek It to Phil* Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, PCW, 12-13 Little Newport Street, London WC2R 3LD





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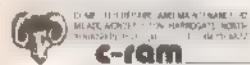
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Tel 01 223 1650

VIC 20 C2N recorder 16K switchable  
Ram pack, joystick Based and new lots  
s/w, books and games £100 o.n.o. Tel  
0704 31704

CBM 64 and cassette unit £300 recent  
original s/w Impossible Mission and  
Pitstick 2 Offers £250 Tel 01-997 8724

VIC 20 data recorder, 3K 16K expan-  
sion Intro basic 1 and 2, 19 games (11 on  
cartridge) mags and books £100 Best  
offer Tel 01-449 1362 after 6pm

CBM 64 for sale Cassette interface  
joysticks Football Manager and Mutant  
Camels games, manuals and leads  
£170 Tel 01-977 0860

CBM 64, data recorder and joystick £130  
or s/w (original) inc Super Basic and  
books inc reference guide £200 Tel: 01-  
331 2236

CBM 64, unwanted gift £100. Brand new  
Tel 01-890 2254 9am-1pm

CBM 64, cassette unit joystick £200 of  
original s/w. Reset switch books and  
mags £270 1520 or printer plotter £60 or  
all at £275. Tel. Reigate 43905 after 5pm

CASSETTE recorder for Commodore 64,  
Brand new unused (unwanted gift) £25.  
Also low games for sale Rocketball,  
Breakdance Cricket etc Cheap Tel 01-  
470 0361 (East London)

CBM books for sale including The Work-  
ing 64 and Basic 64 and many more and  
white lighting cost £140 + £80 o.n.o. Tel:  
James on 05363 63700

CBM + C2N cassette unit excellent  
condition under guarantee and boxed  
plus over £170 of s/w and two joystick  
£280 o.n.o. Tel. James on 06363 63700

COMMODORE Vic 20 Complete starter  
pack, including joystick and magazines  
plus over £100 of games Sell for £65  
o.n.o or swap for ZX Spectrum. Tel  
Sheffield 374788 after 6pm

VIC 20 super expander Arlon expansion  
16K expansion cover m/c monitors, 8  
cartridges 8 shoot programs, 88 tape  
programs, recorder intro basic 2, re-  
vision packs joysticks, worth £1200 sell  
£350 o.n.o. Tel: 0273 556139 Ghrs.

COMMODORE C16 starter pack and  
home office. Database and Wordpro  
£10 Will sell for £70 Tel 01-723 9855

CBM 64, C2N, 1520 printer dust cover  
B/W monitor, approx £200 (original) s/w  
O/S joystick, manuals £300. Tel 01-  
670 1871

VIC 20, C2N data recorder s/w Intro to  
Basic Part I, manuals, still in box good  
condition, will accept £60 Mark Tel:  
061-643 6009.

CBM64 data cassette unit, 2 Quickshot  
joystick over £250 of s/w, US Gold titles  
Dust cover boxed £600. Sell £200 o.n.o.  
Kevin Tel Redn 07353 day.

CBM64 C2N £160 of original s/w books  
£150 o.n.o. CBM1641 drive and s/w £139  
o.n.o. Both for £290 MP5801 multi print  
or unopened £128 o.n.o. All for £399 Tel:  
01-663 5113

CBM64 cassette unit 8 joysticks £170,  
original s/w £190 Justin Tel 01-723  
2808

COMMODORE Vic 1520 colour printer/  
plotter only 2 months old £70 o.n.o. +  
£7.50 p/p interface for ZX printer for Vic  
20 Commodore 64 instructions etc. inc  
perfect condition £10 inc Tel 0851  
870866 after 5pm

COMMODORE Vic 20 plus 10K switch-  
able Ram pack, C2N cassette recorder  
n/cr inc basic parts 1 and 2 games  
cartridge and software and books, all for  
£60 Tel: Bournemouth 082865 20091

VIC 20 recorder cover 86 tapes, pro-  
grams, Arlon expansion 16K expan-  
sion, super expander 8 cartridges Intro  
Basic 2 75 shoot programs, worldwide  
beginner school, advanced, family es-  
sery, revision packs 2 m/c monitor,  
worth £1200 sell £300 o.n.o. Tel 0273  
556139

FOR SALE Vic 20 £40, tape deck £20,  
software £30, 16K Ram pack £15. Many  
magazines, (HCW) £20 Tel Reigate  
(07372) 22135

CBM 1541 disc drive for sale £150 o.n.o.  
Tel Leigh 673627.

CBM 1541 disc drive, cassette, joystick  
and some software £390 o.n.o. Tel 01-361  
9501

## Dragon

DRAGON 32, Recorder, 3 joystick, 4  
utilities ESC, ideas for first time user  
CGP 115 £100 o.n.o. Games programs  
extra Tel 01-283 6523 for details (even  
nights) ask for Andrew

DRAGON 32 + Joystick + mags £50 of  
s/w Tape deck as new £80 or swap for  
any other Popular Computer Tel 0707  
51481

DRAGON 32 TV disk, recorder two  
joysticks, books, magazines and £300  
software All for £120 Also Brother HR 5  
printer and lead, both new £100 Tel  
0842 813895

Dragon 32 cassette recorder, two joy-  
sticks, lightpen 9 games, turtle graph-  
ics, leads Swap for R/C car outfit or sell  
for £80 Tel: Lingfield 834866

## For Sale

AMSTRAD user wishes to find a pen-  
friend, home or abroad Please write to  
Mark Wainstone 34 Bank Lane, Inack,  
Blackburn, Lancashire, England BB1  
2AX



ORIC Atmos 48K less than one month old but I'm now emigrating to USA and I won't work over there hence bargain price. £59 Phone Greg, Brighton (0273) 600070

**AMSTRAD CPC 464** colour complete with joystick software and books. Excellent condition. £280 Tel: Ashford (Middle) 534688

**PRISM VTX 5000** Modem (for Spectrum) complete with connector, etc. Hardly used £40 Tel: 01-606 4044

**ZX Printer** - 4 forms, £15.00. OK Tronics Character Board (ZX81) £12.50. Zon-X Programmable Sound Generator (Ampl/Sprk) 81-Spec £12.50. Glamme Realtime Clock-Cal I/O Board ZX-81 £15. Microtutor 6502 PSU TV/Cass leads, £40 McKenzie Preston 064599

**ORIC Atmos 48k** under makers guarantee with technical software including unique five equation curve fitting, transient vibrations, spreadsheet, analysis, etc. Also books £85 one Tel: 0785 52189 evenings

**AMSTRAD**, colour monitor, 2 joysticks, several books, mags, £400 or original s/w. Swap for BBC or CDM 64 with disc drive Tel: 0900 66814, Kith (daytime)

**MODEMS**, prices 75/1200 Acoustic, £15. Maphin 30/300 direct connect. Binl into phone £30 BBC joysticks £5. Tel: 01-958 6228, Peter Knight

**IBM 64 801** Printer with paper, £125. Tel: 01-937 0987

**NEWBRAIN AD 40/80** contains with latest Rom. This excellent micro for sale at only £175. O/S software monitor £15. Tel: Farnborough (0252) 540633

**BONY MBX** computer with 4 game cartridges won in local radio competition, £260 one Tel: Wrotham 763238

**PAIR** of self containing BBC joysticks and seven discs, three mags which have games on them. Meteos Planefolds, Arcadians. Sell separately or the lot for £25 Tel: 061 327 2155

**EPSON MX82** printer with stock. Centronics and software for Comm 64 £125 one. Tel: 051 933 3986 anytime ask for Dave. Can deliver (free box of paper).

**KEMPSTON** joystick and interface for sale only £17.50 Cambridge joystick tape and interface only £22.75 Tel: 01 248 3924 and ask for Graham

**BROTHER EP-22** printer/powertype RS 232C battery or mains (adapter inc), thermal or ordinary paper £80 Tel: Blackpool (0263) 38386 carriage extra

**STONECHIP** programmable joystick interface will sell for £15 or will swap for ZX printer + paper Tel: 0287 32561 (after 3.30pm on weekdays)

**BROTHER** 1145 printer (RS232C), 11 months old power supply and manual £100 Tel: 01-221 7072

**FOR SALE** Rotronics Watford with 3 Windows + Word Processor £80 or swap for A4 width printer must be in good condition Tel: Wigan 36284 or write Tommy 127 Spring Street, Wigan.

**AMSTRAD CPC464** 3 months old, little used, includes colour monitor. Quick sale £300 one Tel: 902 2788, after 9pm Mon to Fri. Ask for Arnel

## ZX81s for Sale

**ZX81** s/w £1.50 at original Various titles and Assembler/Dissassembler, plus games. Ring Mark 0524 52920 after 7pm

**18K** Ram pack for ZX81. Made by Memotech, boxed v.g.c £20 one Tel: 01-937 5764 after 4pm

**ZX81** 16k, very good condition inc all leads and power supply, 2 manuals, loads of mags, many games inc Rocket Man Tel: Ripley 810039

**ZX81** software for sale. Eight original cassettes. Pimania. Catacombs. Damsel and Beast. Defender. Krakut. Asteroids. Dragon-Maze. Nightmare Park. Accept £22.50 o.n.e. the lot or will split. (0244) 675717

**FULL** size printer for ZX81. ASR33 special type, very cheap to run. No special

paper or ribbon. With interface and software. Ready to run. Buyer collects. £45 Phone Chippinham 553662

**ZX PRINTER** vgc £20. ZX81 s/w for sale originals only Tel: 03526 3033, after 4pm

**COMPUTER** package ZX81 16K, 7 games, approx 90 computer mags, all leads manual carrying case just £48. Good beginner, with boxes Tel: Ashford Middlesex 41669

**ZX81** £12. Arron Tel: Quorn 412554 anytime after 7pm

## Spectrum for Sale

**SPECTRUM 48K** with Kempston joystick and over £180 of S/W and books. All in perfect condition. £150 Tel: Guildford (0483) 65128 eves

**FOR SALE:** Spectrum software including Daley Thompson's Decathlon, USA Baseball 1984 Pool, Urban Upstart, Ghostbusters and Black Crystal. Thirteen games in all for worth £90 but I want £75, will split. Tel: Sheerness 664009

**SPECTRUM SOFTWARE:** Hobbit, Hurg, While Lightning £7.50 ea. Doomdark's Revenge £5.50. Dark Star £4.50, Jet Pac. Galaxians, Missile Defence £3.50 ea. Night Gunner £4. Mr Davis 177 Downs Rd, Belmont Sutton Surrey SM2 50D

**KEMPSTON INTERFACE 'E'** Spectrum to Centronics all instructions in Rom. £35 Tel: 0733 32580 evenings

**ZX SPECTRUM 48K** £75. Computer tape recorder £12. Interface £29. Kempston light pen, £10. Also 31 tapes £15. Hobbit and Treasure Island £10. F. Shults 78, Archer Ave, Southend-on-Sea, Essex SS2 4QT

**SPECTRUM SOFTWARE** Ram Over Moscow. Wrath. Mags. Return to Eden. L.O.M. Tower of Despair. Classic Adventure. Bunny Phantasm. Hulk the lot for £40. H. Morhardt 28 McKinnis Ave St. Helens Merseyside WA9 2PN

**SPECTRUM** 32-PROFILE professional keyboard as new. £25. Also many best selling titles all at ridiculously low prices. Please send for details. 100 Middlefield Lane, Hinkley Leics. Tel: 0455 635416

**SPECTRUM SOFTWARE** Six pack £15 one, boxed. 0700 Phillips video Pac, 2 cartridges £20 one or swap for ZX printer and paper. Mark Tel: 907-5396

**SPECTRUM ORIGINALS** for sale. Bear George, Aquarius, Megadead, Cassidee 50 and Planefolds. Only £3.50 each or all for £12. Write to Julia Chambers 22 Bedford Avenue, Shaw OL2 7DW

**SPECTRUM SOFTWARE FOR SALE**, All originals, include Baseball, Bruce Lee Buggy Blast. Designers Panel 3 Level 9 Out of the Shadows, etc. Tel: (0298) 77641 and ask for Rob

**SPECTRUM** - games + joystick interface + mags + books - manual Under guarantee Swap for CDM 64 + C2H. Write with Phone number Gary Sanger 30 Station Ave. Wickford, Essex SS11 7AS

**SPECTRUM 16K**, Some software £55 one or exchange Brother EP22 Tel: 01-879 5047

**SPECTRUM POWER PACK** £2.50. Both manuals for £4. Cassette leads £1. Horizons tape, £1. JSW, £2.50. Penetrator, £2.50. Hong £2.50. SAE to G. Edwards, 78, The Mallings, Union Bridge Kings Langley Herts Tel: Kings Langley 06501

**48K SPECTRUM**, excellent condition, printer + 4 rolls of paper, cassette recorder, £700. software, sell for £200 Tel: Schurch (0202) 486727

**SPECTRUM SOFTWARE:** Volcano, 3D Lunar Crabs, £3 each. Spawn of Ev. Voyage into the Unknown, £1.50 each. Booty £2. Also Top Jan Light pen, £16. Baep amplifier £10 or sell for £32. Steven Holmes Tel: Swansea 3655

**BOXED SPECTRUM** - with guarantee and turbo interface. Quickshot 2 and 12 games. Titles include Death Star, Inter-

ceptor, Moon Cresta, Air Wolf and many more. Total £239 but for quick sale £165 Tel: 452 5259 4pm-8pm

**SPECTRUM 48K** fitted in full FDS keyboard power pack, manual working order £90 posted £80 if collected Tel: Rainham 04027 20292 (Essex)

**48K SPECTRUM**, joystick interface, light pen software mags, Quickshot II joystick Cost £279, sell £160 or swap for Atari 800XL tape deck + games Tel: Glasgow (041) 771 4715

**48K SPECTRUM** with nearly £200 or original software including While Lightning, Ghostbusters, Jet-Set Willy etc. plus joystick interface, all boxed, as new in excellent condition. Only £100 Tel: Morley 771876

**SPECTRUM ORIGINAL SOFTWARE** SALE: Forth Assembler Knight Lote £5, Backgammon, Chess, Reversi, Caesar, The Cat, Omnicore. Tel: Bryan Tel: 01-692 4690

**48K SPECTRUM** Currah Speech unit. Cassette recorder plugs and leads, manuals, books and magazines, £200 or software. Worth £450 sell for £200 one Tel: (0639) 21450 ask for Dave

**SPECTRUM SOFTWARE FOR SALE:** Worth over £75, sell for £35 one all originals including Daley's Decathlon TLL Micro Champ, Omega Run, Chequered Flag and eight other quick sale Tel: 0349 282708 after 5pm

**ORIGINAL SPECTRUM SOFTWARE:** Cyrus Chess, Supercade III, flight simulation v.o. Calc. Archurus, 3D Strategy etc. All boxed mint condition. £15 the lot Tel: 01-527 5493

**SPECTRUM** (16K/48K) tapes worth £70. Transam. Cookie Magic Mammies, CDS Pool, Bug-Bite Pool, Star Warrior, Airliner, Motor Mail, Meteor Storm, Digger-Dan Roman Empire, Air-Ranger, Monsters in Hell, Spacewalk £30 one Tel: Clacton 427635

**SPECTRUM 48K** interface joystick over 100 quality games inc. Match Day, Starstruck Decathlon etc. Many magazines and books. Still boxed. Worth £515 sell for £160 one Tel: 0328 287684

**SPECTRUM SOFTWARE** for sale £30 worth of games will sell for only £15 inc p&p. Will not split. Tel: Leeds 824858

**SPECTRUM 48K** Microspeech, Turbo joystick interface tape, recorder. Over £300 of software inc. Donnard's Revenge, Lords of Midnight, Quil March, Point Valhalla, Cyclone Knight Love. Worth £550, sell for £245 Tel: Taddington 3265

**SPECTRUM** plus Tandy cassette recorder and Currah Microspeech, £90 the lot! Large collection spectrum software £40 interface one with two microdrives and ten cartridges £40. Accept £200. Whole system Tel: 0444 52426

**48K SPECTRUM**, DK Tronics, built in sound. Rotronics wafadrive seven cartridges. Alphacom 32 printer plus books software, ead, PSU etc. Good sensible offers £200 Tel: Abingdon 834613

**SPECTRUM** games offers all originals and in good condition. Just send an SAE to 10 Eastcourt Drive, Walsden, High Wycombe, Bucks HP15 8AH or Tel: High Wycombe 713699

**SPECTRUM SOFTWARE FOR SALE**, All originals. All half price or less. Titles include Alien 8, Doomsday's Revenge, Fantastic Voyage, Boulder Dash and over 75 other titles. Tel: (0607) 26946 and ask for Stephen

**48K SPECTRUM** software books and 140 + mags worth £420 going for £180 one Tel: Amesbury (0980) 22589

**SINCLAIR QL** as new with QL cartridges and RS232 cable included plus some books. £320 one Tel: 0509 214810. Am prepared to travel large distances to deliver computer

**48K SPECTRUM**, low profile keyboard, tape deck tapes, books, plus all leads, 2 manuals, lots of magazines, £90. Tel: Blanford 34161, after 6pm

**SPECTRUM** software pack (all originals), Cyrus Chess, Supercade III, Poison Flight Simulation, Va-Calc, Archurus, 3D Strategy etc. £15 one the lot £27 5493

**48K SPECTRUM** professional keyboard, programmable interface. Kempston joystick, all in excellent condition plus over £500 of software plus tape recorder all at a bargain price of £400 Tel: Andy 01-858 9964

**SPECTRUM** software for sale, Games Designer £4.95, Pogo £2.95, Kong £1.85, the lot for £8. Tel: 0732 655197 after 6pm. (Originals only)

**SPECTRUM** for sale 48k complete with leads, instruction manuals and tape recorder only £90. Telephone 01-348 3924 and ask for Graham. First offer secures

**48K SPECTRUM**, tape recorder, interface 1, 2 microdrives 2 joysticks, music synthesiser, speech synthesiser £300. Tel: 01-952 7210

**48K SPECTRUM** Interspac Interface, light pen, printer 8 rolls of paper, tape recorder, books, s/w. £200 the lot. Sell split Tel: Brecker 2579

**ZX SPECTRUM 48K**, Microspeech, Sound Synthesiser joystick 1 Interface - £250 or s/w all for £200 Tel: 01-808 2641 after 4pm

**ONE ORIGINAL** Spectrum keyboard mint condition £10 Tel: (0493) 803965

**48K SPECTRUM**, under guarantee VGC. New programmable common joystick interface. £100 + software. New cassette recorder. All worth £250 + but for £130 one, Phone 01-953 5505 evenings only

**UNUSED SINCLAIR QL** computer, quill easel etc. plus 8 microdrive cartridges, RS232 lead. Bargain £299. 351-652 1106 (9-5pm)

**48K SPECTRUM** + tape recorder, books, games and lightpen (fully boxed) will sell for £100 one Tel: 01-883 9650

**SINCLAIR QL** plus manual, extra tapes. Mint condition very little useage any. Tel: £250 Tel: Windsor 63949

**QL** with manuals + leads £250. Contact Dave Branton 18 Station Road, Reddish, Stockport, Cheshire

**SPECTRUM 48K** plus, Protea switchable interface. Quickshot 2 joysticks, lightpen 3 program books. Over £100 of s/w (Original) Price £150. Tel: Newquay 06373 77658

## Tandys for Sale

**TANDY** 100, 32k Computer + additional S/W, 2 of original price £350 excellent working condition Tel: 0532 439431

**APPLE 2** compatible 64K 80 colour, £280 printer card £140 2 clones £180 1800 Screen Monitor 9" £30 Teac Dot matrix printer 120 CPS £220 Andrew Wong Road 4, John Adorn Hall, 15/23 Embsley Street WC1H

**TANDY THERMAL** printer model FTP-10 as new cost £80. Unwanted gift including interface cable for 183 80 computer, paper, plug etc. Stillboxed accept first £37.50 one with post Tel: 0244 875717

**TANDY TRS 80** colour extended 16K joystick manuals game perfect condition £70 Tel: Newcastle-upon-Tyne 324508 evenings

## Wanted

**WANTED** Spectrum Micro-Command (up to £30) Swap Currah Speech (VGC) for Cheetham Sweet-Talker (sell £20) Also poly-synth (Siel MK900) etc/casio keyboard wanted (up to £300) Tel: Neil 0249 12862

**WANTED** Sinclair printer for Spectrum, must be in v. good working order, will pay £25 plus some software write to Jeff, 26, Harry Price House, Hartlebury Road, Oldbury Warley B69 1EO

**WANTED** Interface one and microdrive, will swap for VTX5000 Modem plus books Tel: Andrew on Neath 760 952 or write to 1, Hooly-graig, Crynant, Neath SA10 8TF

**EXCHANGE** Spectrum 16K complete and off reset switches for Brother EP22 typewriter/printer or sell £55 ono Chris 01-979 5047-9/5.

**MEMOTECH** Pascal Rom-chip wanted also Memotech RS232 communications board wanted Telephone David on (0278) 862101 after 5.30

**WANTED** CBM 64 or BBC will exchange classical guitar Alhambra 8C value £250 plus carrying case and foot stool Phone Enfield 01-383 3363

**WANTED** Atari 400 48K Ram board. Willing to swap 2 to 8 Rams depending on condition (working board or not), or £20. Telephone Steve 061-766 2159 after 7pm

**SWAP** Prism VT55000 + software for ZX printer - paper Perfect condition. Keven Ashbridge, 29 Queen Crescent, Frilzington, Cumbria

**WANTED** Oric 1 keyboard and case. Did you swap 8 when upgrading to Atmos? I will give you £10 for it! Write to Mr Norton, 138 Newlands Road, Shirley, Bham B30 2RH.

**WANTED** to buy Amstrad hardware & software (local area preferred) Mr Gerry, 3 Upper Ham Road Ham, Richmond Surrey.

**WANTED** Acorn Soft Vetuschi for BBC micro Tel Radwell 2632 Wanted Z80 processor

**EXCHANGE** Sinclair QL for Apple II plus accessories Write B. Jameson 9 Hartford Crescent, Ashington Northumberland NE63 0CD.

**WANTED** cheap printer software utilities etc for Spectrum. Also other cheap computer working or not for college studies Write Nigel Richardson, Flint 15, 29 Thicket Road Sutton, Surrey SM1 4PS.

**SWAP** cantata equipment for medium computer + printer Olympus OM2N outfit worth £800 Tel 0798 857968 (Essex)

**WANTED** Atari 800 or 400 48K Tel: South Shields 558990.

**SWAP** Currah Microspeech (Spectrum) for working ZX81 or broken Spectrum Please phone (0707) 42065 evenings & weekends.

**SWAP** Currah Microspeech - s/w tape for Spectrum Printer 1 paper for sale £20 Tel Niall (0249) 712652

**WANTED** Spectrum s/w new titles Of lers to Rabellette 2673

**WANTED** 48K Spectrum for spares Pay up to £30. Can not collect. Tel 070701 Farnworth

**WANTED** 11 B&H magazines and extended basic module fair price paid 32 Glenside Park, Dunmurry Belfast BT17 9BA Telephone 0232 625301.

**WILL** swap Stonechip programmable joystick interface. Quickshot II and Cambridge joystick. All working perfectly for Alphacom 32 printer Phone (0555) 71811 after 5pm Mon-Fri and ask for Stuart.

**WANTED** Atari 410 cassette recorder and non-working Aquarius S A B 108 Kingsway, Wellingborough, Northants NN8 2EN.

**SWAP** my Toka-Strat guitar and Marshall 30W Amp for your 1541 disc drive or £265 of your cash. Tel (0245) 670264 after 5pm

**SWAP** Amstrad CPC 484 with colour monitor, joystick cassette for Casio C2101 or synthesiser Write to D Scott 265 Harden Place, Hawick, Scotland.

**WANTED** ZX printer or Alphacom 32 with rolls will pay up to £15 (not inc. paper) Write to Brian O'Connor 5 Almeida Terrace, Kilmainham Dublin 8 Also wanted Spectrum s/w

**WILL** swap Stonechip programmable joystick interface, Quickshot II and Cambridge joystick. All in v.g.c for Alphacom 32 or microdrive + interface Phone (0555) 71911 after 6 o'clock Mon-Fri and ask for Stuart

**Now** a poor unemployed Spectrum owner requires your unwanted microdrive or waifadrive. Must be very very, very cheap or even free Phone (0555) 71911 after 8 Mon-Fri Ask for Stuart

**WANTED** 1 Dragon Premier, 5 1/4 Disc User for exchange of hints/tips/disc Tel: Staines 58707 after 6pm

**WANTED** Basic for Sharp MZ80K plus any other software or books including owners handbook Tel: Mr Reeves 2623 31297

**WANTED** Vic 20 16K expansion and Bongo Will buy or swap for 2 bars and Wacky Watters tape for unexpended Vic Need urgently Tel 0526 316 348

**ZX PRINTER** (working) wanted Up to £30 paid Tel 0562 740 720 after 6pm.

**EXCHANGE** Textile Word Processor & Colossus Chess both on disk for Basic compiler on disk for Commodore 64 or light pen Tel: 01-748 7868 after 6pm.

**WANTED** Atari 810 disc drive. Any reasonable offer considered Write G Yemini, 1 Eastley, Basildon, Essex SS16 5TQ.

**SWAP** my CBM16 C3N Intro to Basic £100 games mags and books for your Atari 800 XL with tape unit, joystick and books Tel 0703 731472 also have joystick

**WANTED** ZX80 computer. Must be in good condition with lens manual etc and very cheap! ZX81 Vic 20. Jupiter Ace Aquarius etc also wanted Must be cheap Phone 0763 61392

**SWAP** Currah Speech for ZX printer or Kempson joystick To or write to Chris now 985 6279

**QL** wanted. QL monitor, Lsp Point Integrated Accounts cash trader for sale QL Pascal Tel 021-742 1099

**WANTED** Oric and Atmos software Must be originals Also any ZX81 software and Dragon software. Cash paid for quality items. Tel 0788 812948 (after 7pm)

**SWAP** Spectrum 48K upgraded 88 Plus Kemston Triple Joystick Interface software and £50 for CBM16 with C2N cassette deck, Eales, 33 Lower Ellacombe Church Road Torquay, Devon

**SWAP** Dragon 64 2 joysticks 6 games, 3 books and mags for Spectrum Plus or

Electron or se £140 ono Tel: Nottingham (0602) 639882

**WANTED** Dragon 32/64 Edinburgh area. Will collect Any peripherals considered Tel 2506 55231

**WANTED** ZX81 s/w Good price paid for good s/w (originals only) Tel: 01-673 7591

**SWAP** Spectrum Plus, 5 1/4 printer guarantee + books + mags + joystick interface + lot of software for IBM 64 + C2N or sel £160 Write Gary Sanger 35 Station Avenue Walslow Essex

**COMMODORE** 1541 Disc drive plus 8 disc 11fers or exchange Spectrum 48K plus cash also Compunet Modem and Membership Ask for Tony Tel 0482 833111 (anytime).

**WANTED** to Buy - Interface & disc drive Tel Sunderland 40856 anytime

**Wanted** Hewlett Packard HP 85 Computer, disc drive etc. will buy for cash or part exchange for professional camera outfit Minerva RS87 plus lenses Tel Weymouth 751678.

**BBC-B** wanted preferable with disk drive and game willing to pay up to £400 Tel Luton 37968 after 5pm

**SHERLOCK** on CBM64 General lins wanted Write to Allan Cooper 22 The Crossways, Old Guildford, Surrey or phone 0494 55122

**WANTED** Dot matrix printer RS232 only or with interface for Spectrum Must be under £100 Also wanted Teletype style printer (RS232) cheap but working Tel. Bookham 56377

**WANTED** 4040 Commodore dual disk drive Tel 0765 668173

**AMSTRAD** Pental wanted Write to Mark Lee, 3 Leopardstown Court, Stillorgan, Co Dublin Ireland

**WANTED** H-1 sheets for Lords of Time. Adventure Quest, Dungeon Adventure Tel 0973 770607 Mr Arthur

**AMSTRAD** colour monitor 2 joysticks, several books, mags £400 of original s/w Swap for BBC or CBM64 with disc drive Tel (0900) 55614 Keith (day)

**WANTED** new Spectrum s/w Very good price No copies. D Small Tel Radiall 2673

**WANTED** Jupiter Ace, working condition Tel 01-330 3837 evenings

**COMMODORE** USERS!! I desperately require the following items:- Inside CBM Dos from Premier Hall Anybody of the 1541 Disk Drive from Adamssoft/First Publishing Phone me now!! MIAH 3558 822509

## ADVENTURE HELPLINE

**Caldix on Spectrum.** How do you stop the floor boards from creaking when getting the wire cutters? How do you get off the window ledge? Mark Howlett, 85 Byngsams Harlow, Essex.

**Dania Through the Drinking Glass on Spectrum.** How do you get a drink and get out of number 10? R Wilson, 8 Westfield Terrace, Lofus, Salburn, Cleveland

**Claymore Castle on Commodore 64.** How do I climb the fountain without dying? How do I open the stone door? How do I get the can? Steve Huckvale, 47 Finham Green Road, Finham, Coventry (0263 418805)

**Tomb of Xelops on Commodore 64.** I cannot get the majestic painting, miniature pyramid or 100 grinning skulls. What use is the fruit cake? Leslie Austin, 25 Royal Avenue, West Onchan, Isle of Man.

**Fantasia Diamond on Amstrad.** I can't open the trapdoor or musical door because the conductor stays there. Is there something missing? Mohamed Lakki, Cardinals Way, London N19.

**The Tracer Sanction on Commodore 64.** Where do I find Sole on Dartan? I reach Valleyron? Marco van Slagteren, Longswater 289, 1068 EC Amsterdam, Holland.

**Spiderman on Commodore 64.** How do I reach the mysterious cloud? How do I start the process? Jif Dyson, Bryn Trion, Vaynol Park, Bangor, Gwynedd

**Sherlock on Spectrum.** How do you get into Basil Phipps' and Tricia Fender's London home? Sarah Young, 406 Carnarvon Road, South Woodford, London E18

**Tower of Despair on Spectrum.** How do I get past the Demonkon? Roel Castelan, Ullenshoelstraat 13, 2080 Merksem, Belgium

**Return to Eden on Spectrum.** How do I start? I keep getting zapped! Dave Edwards, 48 Ryvordale Court, Higher Blackley, Manchester

**Mission 1: Project Volcano on Amstrad.** Please send out a plea of help. I have got past the 1st droid and up to the second level, but I can't get any further without being gassed. Tony Goodman, 87 Grosvenor Road, Ramsgate Kent (0843 555304)

**Empire of Karn on Commodore 64.** How do you kill the snake and how do you get the key from the widow Nasil? Gubian Dadeon, 73 Amethyst Road, Christchurch, Dorset

**Jewels of Babylon on Amstrad.** Where is the key for the door and how does the slab move? Ma J Fox, 354 Mool Road, Oldbury.

## THE FUZION OF MIND AND MACHINE CONFUZION

## COMPUTER SWAP

## COMPUTER SWAP

Please write your copy in capital letters on the lines below.


Name .....

Address .....

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Computer Swap entries are limited to 30 words. Either fill in the accompanying form and send to Computer Swap, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 9PP or telephone 01-437 4343.

All software offered through computer swap must be in original condition and for private sale only.

It cannot be swapped.  
Warning: It is illegal to advertise pirated software.



## Amstrad

1	(1)	Knighdore	(Ultimate)	£9.95
2	(5)	Alien 8	(Ultimate)	£9.95
3	(3)	Chorinesters	(Activision)	£10.99
4	(3)	Sorcery	(Virgia)	£9.95
5	(8)	Taskmasters	(Design Design)	£7.95
6	(-)	Combat Lynx	(Marlech)	£6.95
7	(10)	Super Pipeline 2	(Taskee)	£8.99
8	(9)	3D Star Strike	(Real Time)	£8.95
9	(4)	Daley's Decalation	(Ocean)	£8.95
10	(6)	Minder	(DK Tronics)	£9.95

## Bubblers:

Hunchback	(Ocean)	£8.99
Jet Set Willy	(Software Projects)	£8.95

## Atari

1	(1)	Bruce Lee	(US Gold)	£7.95
2	(1)	F15 Strike Eagle	(US Gold)	£14.95
3	(6)	Pole Position	(AtariSoft/US Gold)	£9.95
4	(-)	Fort Apocalypse	(US Gold)	£9.95
5	(2)	Chostbusters	(Activision)	£10.99
6	(-)	Dreiba	(US Gold)	£9.95
7	(3)	Smash Hits 3	(English Software)	£14.95
8	(7)	Mr Do	(US Gold)	£9.95
9	(5)	Decathlon	(Activision)	£9.95
10	(6)	Beachhead	(US Gold)	£14.95

## Bubblers:

Zaxxon	(US Gold)	£14.95
Smash Hits 2	(English)	£14.95

## BBC

1	(1)	Knighdore	(Ultimate)	£9.95
2	(2)	Alien 8	(Ultimate)	£9.95
3	(3)	Revs	(Acornsoft)	£14.95
4	(4)	Atac Atac	(Ultimate)	£7.95
5	(7)	Elite	(Acornsoft)	£14.95
6	(8)	Brian Jacks Imperator	(Durrell)	£7.95
7	(5)	Wizardore	(Imagline)	£7.95
8	(-)	Gremmlin	(Adventure International)	£9.95
9	(-)	Castle Quest	(Micropower)	£8.95
10	(9)	Hampstead	(Melbourne House)	£8.95

## Bubblers:

Magic Mushrooms	(Acornsoft)	£12.95
Combat Lynx	(Durrell)	£9.95

## Commodore

1	(1)	Dambusters	(Sydney/US Gold)	£9.95
2	(2)	Softaid	(Softaid)	£4.95
3	(3)	Pitstop II	(CBS/Epyx)	£9.95
4	(5)	International Basketball	(Commodore)	£5.95
5	(7)	Theatre Europe	(PSS)	£9.95
6	(4)	Shadowfire	(Beyond)	£9.95
7	(-)	Herbert's Dummy Run	(Mikro-Gen)	£9.95
8	(1)	Impossible Mission	(CBS/Epyx)	£7.95
9	(10)	Spitfire 40	(Mirrorsoft)	£9.95
10	(-)	Grog's Revenge	(Sydney/US Gold)	£9.95

## Bubblers:

Bounty Bob Strikes Back	(Big S/US Gold)	£9.95
Strangeloop	(Virgia)	£8.95

## Spectrum

1	(1)	Softaid	(Softaid)	£4.95
2	(3)	Shadowfire	(Beyond)	£9.95
3	(4)	Spy Hunter	(Sega/US Gold)	£7.95
4	(5)	Tapper	(Sega/US Gold)	£7.95
5	(2)	Starion	(Melbourne House)	£7.95
6	(10)	Herbert's Dummy Run	(Mikro-Gen)	£9.95
7	(6)	Rocky Horror Show	(CRL)	£8.95
8	(-)	Falcon Patrol 2	(Virgia)	£6.95
9	(-)	Minder	(DK Tronics)	£9.95
10	(-)	Give My Regards to Bridget	(Mindgames)	£7.95

## Bubblers:

Chicken Egg 2	(A 'n' F)	£6.95
Cyron	(Firebird)	£2.95

All figures compiled by Ram/C

1	(1)	Soft Aid (Spectrum/C64)
2	(3)	Dambusters (C64)
3	(2)	Knight Lore (Spectrum/BBC/Amstrad)
4	(4)	Pitstop II (C64)
5	(8)	Alien 8 (Spectrum/Amstrad)
6	(12)	Herbert's Dummy Run (Spectrum/C64)
7	(10)	International Basketball (C64)
8	(14)	Theatre Europe (C64)
9	(-)	Revs (BBC)
10	(7)	Shadowfire (Spectrum/C64)
11	(6)	Spy Hunter (Spectrum/C64)
12	(-)	Tapper (Spectrum/C64)
13	(5)	Starion (Spectrum)
14	(15)	Rocky Horror Show (Spectrum/C64)
15	(-)	Atac Atac (Spectrum/BBC)
16	(13)	Impossible Mission (C64)
17	(16)	Ghostbusters (Spectrum/C64/Amstrad/Atari)
18	(-)	Spitfire 40 (C64)
19	(19)	Jonah Barrington's Squash (Spectrum/C64) New Generation
20	(11)	Minder (Spectrum/Amstrad)

Figures compiled by Ram/C

Various Artists
Sydney/US Gold
Ultimate
Epyx/CBS
Ultimate
Mikro-Gen
Commodore
PSS
Acornsoft
Beyond
Sega/US Gold
Sega/US Gold
Melbourne House
CRL
Ultimate
Epyx/CBS
Activision
Mirrorsoft
New Generation
DK'Tronics

## Readers' Chart No 28

1	(1)	Soft Aid (Spectrum, C64)
2	(3)	Knight Lore (Spectrum, BBC, Amstrad)
3	(2)	Everyone's a Wally (Spectrum, C64)
4	(4)	Alien 8 (Spectrum)
5	(5)	Confuzion (Spectrum, Amstrad)
6	(-)	Elite (BBC/Electron)
7	(6)	Bruce Lee (Spectrum, C64)
8	(7)	Cyron (Spectrum)
9	(10)	Finders Keepers (Spectrum)
10	(8)	Match Day (Spectrum)

Various Artists
Ultimate
Mikro-Gen
Ultimate
Incentive
Acornsoft
US Gold
Firebird
Mastertronic
Ocean

Winning phrase No 28: "Keen hairstyler fellows yet!" from D J Bradbury of Ryldwood Road, Wimbledon, London SW20, who receives £25. Honorable mentions go to Neil Band of Llanedeyrn, Cardiff, for "Harold Wilson's eaten a live Tory", T Burdiss of London SW14, for "Ashes for Gower? Not likely" and A Hyland of Gravesend, for "Eeeesack, what is it?"

## Now voting on week 30 - £25 to win

Each week *Popular* is compiling its own special software top ten chart - compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever - but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's chart, published above.

You can still vote in the chart without making up a slogan - but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to: Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

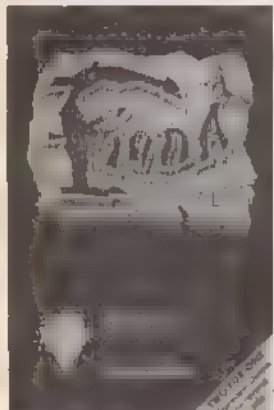
Voting for Week 30 closes at 2pm on Wednesday June 19 1985. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name .....	My top 3: Voting Week 30
Address .....	1.....
.....	2.....
.....	3.....
My phrase is: .....	

# New Releases

## DEMONS

*Fiona Rides Out* is a new release for the Commodore 64 very much in the style of *Cauldron* and *Sorcery*. For some reason arcade games which let you collect and use things using joystick controls and generally have some sort of adventure element are always connected with magic witches. Wonder why?



Anyway *Fiona Rides Out* has you helping Fiona, foul witch, to regain her power - this involves retrieving her spell book found on the 12th screen. To get there she needs to collect various tools and spells. To get spells she has to blast at flying ingredients. If Fiona fails she gets sent to Hell where all is burning rocks and demons.

Graphically it's a reasonable though not staggering game and the music - gothic Bachian type stuff - is a bit reminiscent of other games. Still, there are a few original ideas and you get a free game, *Daredevil Dennis*, on the other side of the tape

**Program** *Fiona Rides Out*  
**Price** £7.95  
**Micro** Commodore ■  
**Supplier** Viper  
Eardley House  
182/184 Campden  
Hill Road  
London W8

## BUDGET

It's always difficult to see why the average person would want to keep their bank account on a micro.

People seem to forget that whilst a computer can tell you

all sorts of clever things about current totals, standing orders, you do have to remember to type things in.

Can you really imagine having a regular time when you sit at your computer and input all the cheques you've written, to whom, and when?

If you can then *QL Bank Account* is very good. Microdrives mean that, at least, compared to tape, the program loads quickly, as do file records. The design is simple to use, there are 17 budget headings under which outgoings may be filed, and once you enter the basic details of a standing order the computer will include it in each month's balance automatically.

You can dump statement details to Epson printers, but there is an ominous warning that should you start the print out process with no printer attached, the program will hang up and you have to re-start the program with ■ the current information in the computer being completely lost.

This is not Cenprime Software's fault but Sinclair's. I mention ■ because ■ is these kind of annoying hiccups that have plagued the QL since its introduction.

**Program** *QL Bank Account*  
**Price** £19.95  
**Micro** QL  
**Supplier** Cenprime Software  
■ Castle Street  
Rugby  
CV21 2TP

## ILL-DEFINED

*C5 Clive* is a cheapie £1.99 game from Scorpio Software.



Really the only noteworthy feature of the game is that it features a C5. But since this is, in fact, a tiny little user-defined graphic that could equally well be a piece of cheese that element is hardly crucial.

The game is a standard dodge the baddies game mixed with a sort of bike jump-type game. You move the C5 up and down past odd objects collecting batteries (God knows, you need them) and then leap over things like people and buses.

Objects are, without exception, blobby and ill-defined, and whilst it's cheap I think this one is below the average level of, say, a Mastertronic game.

**Program** *C5 Clive*  
**Price** £1.99  
**Micro** Spectrum  
**Supplier** Scorpio  
Gamesworld  
307-313 Corn  
Exchange Building  
Cathedral Street  
Manchester 4

## RECREATION

Yes, it's the one Commodore ■ game players have been waiting for - *Elite* on the C64. Written by Ian Bell and David Braben, who wrote the BBC version, it is a faithful recreation of the original, with a few extra features included.

The colours on the various displays have been greatly enhanced - now you have four colours for the view screen and eight for the status panels. This means that you can actually have glorious orange explosions as your missiles tear through the fragile skin of your target.

What it really means, of course, is that the displays are far clearer, much easier to understand, and somehow crisper. It all adds to the illusion of being in the cockpit of your Cobra Mark III.

The C64 *Elite* also has music - but only for the docking sequences. And guess what it is - that's right, da-da-da-da, du-du, du-du, etc - the Blue Danube.

In addition to the command that turns the music on/off, you can also remove the lines that you see on the planets - this speeds up the whole



game. There are also a lot of extra features that aren't mentioned in the instruction book - this is deliberate, so I shan't spoil them for you.

Bell and Braben have done an excellent job converting their game for the Commodore, it plays superbly and it seems to be as fast as the BBC version.

**Program** *Elite*  
**Price** £17.95  
**Micro** Commodore 64  
**Supplier** Firebird Software  
Wellington House  
Upper St Martin's  
Lane  
London WC2H 8DL

## TRUMPED

*Bridge* for the Amstrad from Kuma is one of the first versions on this machine of this classic card game. The difficulty of implementing *Bridge* on the computer, I reckon is programming the computer ■ play the cards convincingly after the bidding.

Kuma's *Bridge*, after testing, was declared by those in the office who know, to be a sound but overly cautious bidder, which probably means it would be good for practising with.

Graphically the game is very impressive - the high resolution Amstrad screen is well suited to clearly displaying fine detail and there is much use made of it in this program. Hands are very clearly depicted and bidding, score, tricks and cards are all displayed on screen.

**Program** *Bridge*  
**Price** £8.95  
**Micro** Amstrad  
**Supplier** Kuma Computers  
12 Horseshoe Park  
Pangbourne  
RG8 7JW



# New Releases

## DIVIDED

*Danger Mouse in Double Trouble* is now available on the Amstrad. Graphically it's marvellous - the design for the main characters is taken straight from the original sketches for the cartoon. As a game I'm not so sure.

I always think it's a bad sign if a game is divided into sections - separate games are too often bodged together with no real attempt to unify them. The idea is that three inferior games, not good enough to stand up on their own, may produce an acceptable end result if you put them together. It doesn't work.

Not that *Danger Mouse* is the worst example of this syndrome, the effort that has gone into the graphics prevent that. It's more a question, I think, of not really having a good idea for the game - what you get instead are three OK ideas.

The sections are these: *Danger Mouse* is first seen with Penfold flying in his aeroplane. At different heights

levels they are confronted by different baddies and must launch the correct repellent. Stage two is a jungle game - jump over the swamp avoiding the crocodile and then climb the tree using the swinging monkeys. Part three is a form of *Mastermind* with an excellent *Danger Mouse* animated sprite trying to match a coloured pattern.

If you like *Danger Mouse* and great graphics you may love this, but for pure game alone I can't recommend it.

**Program** *Danger Mouse in Double Trouble*  
**Price** £7.95  
**Micro** Amstrad  
**Supplier** Creative Sparks  
Thompson Houses  
296 Farnborough Road  
Farnborough  
Hants GU14 7NF

## BLOCKAGE

*Pipeline* by Taskset on the Commodore was one of the more inventive games on the machine, the basic idea being to keep the water flowing through a pipe by constantly repairing the blockages that appear in it. This means moving a little workman figure around - there are the compulsory nasty objects zooming around to make things tough. A simple basic idea that worked.

The game has been produced for the Spectrum by Viper. In the admirable intention of doing a sophisticated job the programmer has, I feel, somewhat spoilt it. Basic game plan is the same - move your workman around the pipe taking him to each new blockage.

## Pick of the week

## HARD LUCK

Whatever you believe something or something somewhere is going to prove you wrong and so it is with gritted teeth that I own up to finding a *Manic Miner* derived game with an alternative title utterly wonderful.

The game is *Dynamite Dan* and it has a main character who looks incredibly like Sebastian Flyte and appears to lol about as though surveying the dreaming spires. Let's dismiss the plot quickly - collect the sticks of dynamite, blow up the safe, collect the papers and escape. The usual, in other words.

What makes the game is the graphics - large, witty, bizarre and beautifully animated and not a colour resolution problem in sight (well, very very few, anyway). Visually the game looks a little like the recent *Mikro Gen Wally*.

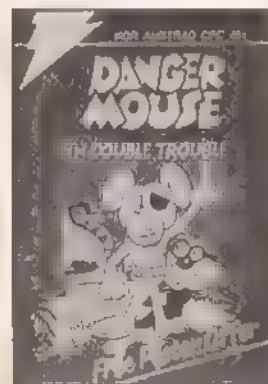
The game is packed with screens and, more significantly none of them are

throwaways, each has something remarkable, and horribly difficult puzzles in the left-right-jump tradition; as ever, timing is all.

Aside from the expected vast collection of assorted bouncing sprites the game features elevators, transporters, a river that runs along the bottom of several screens with a boat that is very difficult to catch and appears very rarely, and the oddest hard luck screen I've seen - you are executed by a funny man in a spaceship who then turns to face you, grinning madly.

*Dynamite Dan* is not just another *Miner* surrogate and is at least as essential to your collection as the original. It's a pity about that name, though.

**Program** *Dynamite Dan*  
**Price** £6.95  
**Micro** Spectrum  
**Supplier** Mirrorsoft  
Holborn Circus  
London EC1P 1DQ



But *Viper* has produced large sprites for the workman and 'you' (a sort of foreman figure) in the *Wally* vein, which would be fine except that they have become difficult to move using the most sensitive joystick we have. It proved hard to move them smoothly around the maze of pipes.

Even if you argue that it's just something you have to get used to, it doesn't alter the fact that the big sprites look wrong for the game and I

found it surprisingly off putting.

A contentious one then, not dross but not much fun to play either. You may react differently.

**Program** *Pipeline*  
**Price** £6.95  
**Micro** Spectrum  
**Supplier** Consolidated Software  
Marketing  
182/184 Camden Hill Road  
London W8 7AS

## This Week

Program	Type	Micro	Price	Supplier	Rhythm + Pitch	Commodore 64	£9.99	Chalksoft
Smuggler's Cave	Ad	Amstrad	£5.95	CRL	QL Bank Account	QL	£18.95	Centprime
Danger Mouse Dk Trb	Arc	Amstrad	£7.95	Creative Sparks	A View To A Kill	Arc	£10.99	Domark
Timebomb	Arc	Amstrad	£6.50	Black Knight	Ancient Guests	Arc	£7.95	Mirrorsoft
Bridge	S	Amstrad	£8.95	Kuma	C5 Clive	Arc	£1.99	Scorpio
Handicap Golf	S	Amstrad	£8.95	CRL	Dynamite Dan	Arc	£8.95	Mirrorsoft
Hack Attack	■	Amstrad	£5.95	Ash Byproducts	Happy Hour	Arc	£1.99	Scorpio
Mastercalc	UI	Amstrad	£19.95	Amsoft	Pinness Frog	Arc	£7.95	Mirrorsoft
Mr Frosty + Penguins	Arc	Commodore	£1.99	Scorpio	Pipeline	Arc	£8.95	Viper
A View To A Kill	Arc	Commodore 64	£10.99	Domark	Planet Attack	Arc	£1.99	Scorpio
Fiona Rides Out	Arc	Commodore 64	£7.95	Viper	Turntaking	Ed	£5.95	Learning Process
Jet Set Willy II	Arc	Commodore 64	£7.95	Soft. Projects				
Way Exploding Fist	Arc	Commodore 64	£9.95	Melbourne House				

Key: Ad - adventure. S - strategy-simulation.  
Arc - arcade. UI - Utility.  
Ed - education.

## SNEAKY

*Jet Set Willy II* is not alas, the legendary Willy and the taxman but is the deluxe souped-up version of the original *Jet Set Willy*. Souped



rooms means finding a spaceship and activating it - a neat way of fitting in the rooms without upsetting the layout of Willy's Mansion. There's nothing dramatically new about the game, of course, but the new rooms are, in many cases, inventive and fiendish. The milling hoards of *Jet Set Willy* addicts should be delighted.

**Program** *Jet Set Willy II*  
**Price** £7.95  
**Micro** Commodore 64  
**Supplier** Software Projects  
Bearbrand Complex  
Allerton Road  
Woolton  
Liverpool L25 7SF

## WAR GAMES

*Battlefields* is a two game package for the BBC B, published by the BBC itself. Both games are wargames - one is the Battle of Waterloo, the other the American Civil War.

The screen display on both games is rather uninspiring, but no doubt this is due to the limitations on the good old Beeb.

*Waterloo* has a dark blue background with a few trees and little huts scattered around, representing forests and towns.

The players take it in turns, first the Allies, then the French. Each side has ten units, with a mixture of cavalry, infantry and artillery. Cavalry units can move two squares, infantry units one.

More care should have been taken with the program; it refuses to recognise lower

case input for the movement orders.

On the plus side, this is one of the few two player games I have seen that makes any use of the computer to generate a realistic feel.

Enemy forces are not shown unless one of your units is next to them, in which case you get a sighting report.

*Civil War*, although it covers a far larger area, is very similar. Again each side has ten units, but each unit can move up to eight squares.

The objective is to score points by occupying enemy territory - each square conquered scores one point.

I can't help feeling that both games are rather too simplistic, both in terms of presentation and actual play.

The usual drawbacks to two player computer wargames are to some extent ameliorated, but I would have preferred a computer opponent.

**Program** *Battlefields*  
**Price** £9.95  
**Micro** BBC B  
**Supplier** BBC  
35 Marylebone  
High Street  
London W1M 4AA

## REVISION

Sphere, the book publisher, has just issued a range of educational titles for O level students. They are easy to summarise and simple in scope - each one consists of dozens of revision questions on each subject presented in the form of a multiple choice exam.

That's it really, the programs have no other function

beyond helping O level student test themselves - if you get something wrong the right answer is given but no explanation is offered. Although questions are divided up into subject areas revision can be confined to particular - you can take a general test on all subjects if you wish.

So, if revision aids are what you need, then at present the range covers Biology, Mathematics, Physics and Chemistry. It won't actually teach you anything, though.



**Program** *Biology*  
**Price** £5.95  
**Micro** Spectrum  
**Supplier** Sphere  
30-32 Gray's Inn  
Road  
London WC1X 8JL

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to: New Releases, Popular Computing Weekly, 12-13 Little Newport Street, London WC2R 3LD.

## This Week

Amsoft, Brentwood House, 169 Kings Road, Brentwood, Essex. 0277 230222. Ash Byproducts, 183 Bristol Road Edgbaston, Birmingham B5 7UB. Black Knight, 60 Slades Drive, Chislehurst, Kent BR7 6JX. 01-467 7451. CRL CRL House, 9 Kings Yard, Carpenter's Road, London E15 2HD. 01-533 2918. Cenprime, 933 Foleshill Road, Coventry CV5 5HN. 0203 686162. Chalksoft, 37 Willowsea Road, Worcester WR3 7QP. 0905 55192. Creative Sparks, Thompson House, 296 Farnborough Rd, Farnborough, Hants. 0252 543333. Domark, 204 Worple Road, London SW20 8PN. 01-947 5624. Kuma, Kuma Computers, 12 Horseshoe Park,

Pangbourne RB8 7JW. 07357 4335. Learning Process, 38 Homedale House, 3 Brunswick Road, Sutton SM1 4DG. Matbourne House, 39 Milton Trading Estate, Abingdon, Oxon OX14 4TD. 0235 835001. Mirrorsoft, Mirror Group, Holborn Circus, London EC1P 1DQ. 01-353 0246. Scorpio, 307-313 Corn Exchange Building, Cathedral Street, Manchester 4. 061 834 2292. Soft Projects, Bear Brand Complex, Allerton Road, Woolton, Liverpool L25 7SF. 051 428 7990. Viper, Eardley House, 182/184 Campden Hill Road, London W8 7AS. 01-221 3592.





## Written word

**E**very so often good ideas do emerge from the collective endeavours of those in the computing field. And more often than not they appear briefly, and then sink without trace.

Take icons for example. An increasingly strong band of manufacturers now believe that icons with either mice or touch screens are the way for the future.

I'm not so sure. The idea behind icon thinking is to develop a system in use a computer with a kind of prompting with pictures. Yes, it is true that it is simpler to indicate a disc icon with a mouse pointer than to type 'Save B:\filename', but even so, in ordinary use still the main body of work with the computer involves typing in alpha-numeric information using a keyboard.

Most information given to the computer must still be in a written format and is stored in that form. This is inefficient. The less adept the typist is, the slower the information is entered into the machine. How can the author be freed from the tyranny of the keyboard? Icons certainly don't go far enough.

Instead of using symbols to represent the words, the user could actually use the words themselves - ie, dictate to the computer.

It is, perhaps surprisingly, the telecommunication companies which are at the moment concentrating on developing speech recognition/generation systems. The computer companies do seem to see the possibilities in doing away with the keyboard altogether, and are investing their money in the idea of icons *et al*. Even so, within another ten years we should have an adequate speech interpreter. NEC's general manager has claimed "We're 10 or 20 years off a speaker-indepen-

dent, large vocabulary, connected speech recognition system."

Speech generation - the other side of the communication gap - is now so far advanced that even home micros costing under £100 can be fitted with £30 speech generators.

So, by the turn of the century or before, all computers could well be dealing with the outside world using the spoken word. Everything - from international businesses' mainframes to the local village shop's stock-taking micro - will be able to speak to their user and listen to the reply. The system would be cheap enough to be implemented even on home micros.

One immediate effect will be in publishing. The cost of publishing a book will be measured by how much memory it takes up - and given the way prices are falling at the moment, coupled with the enormous market for memory chips once 'home publishing' becomes feasible, even specialist books should not cost over £5.

With artificial intelligence, then the computers will no longer merely be able to respond to our orders, they would be able to explain difficult passages. Further, there would no longer be any language barriers. Already the EEC is using a system called Systran - for analysing and translating written language.

Next year a much more powerful machine, Eurotra, is to be brought into service, which will deal with all the 42 different European languages and their variations.

Suddenly, the keyboard will no longer be needed to communicate with computers, all one need do is speak to them. As soon as this happens, popular books will speedily be put on the systems. If the language analysis programs pattern recognition systems are sophisticated enough it will merely be a matter of letting a computer scan each page of a book - possibly a ten minute operation - and at the same time the computer will be able to assimilate any pictures or graphics for it to display on screen.

Fifty years from now written language could have all but disappeared. The most permanent form documents would take would be as digital codes stored in the computer's memory.

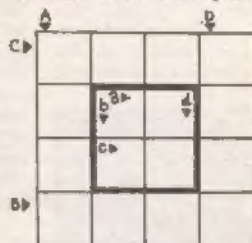
Who will need to read or write then?

Andrew Melholland

## Number puzzle

### Puzzle No 162

Here is an unusual crossnumber puzzle:



In the grid, a, b, c and d are four two-digit numbers which interlock in the centre four squares (a and c are numbers across, and b and d are numbers down).

The squares of these numbers are represented by the capitals A, B, C, and D which fit in the perimeter squares. Can you find their values?

### Solution to Puzzle 151

The only way of reaching the maximum score without being eliminated is if the first dart lands on the '13'.

```
10 DATA 20,5,12,9,14,11,8,16,7,19,3,17,2,15,10,
5,12,4,16,1,20,5,12,9,14,11,8,16,7,19,3,17,2,15
10,6,13,4,18,1
20 FOR START=1 TO 20
30 RESTORE
40 READ G:IF G(>)START THEN GOTO 40
50 LET T=START
55 FOR N=1 TO 19
70 READ R
80 LET T=TR
90 IF T/START=INT(T/START) THEN GOTO 120
100 NEXT N
110 PRINT START
120 NEXT START
```

In the program the scores for each of the segments of the segments of the board (taken in an anti-clockwise direction) are stored in the Data statement. These are repeated to allow a full run of 20 scores from any start position. The program tests each start score in turn and sums up the totals for each by reading from the Data line.

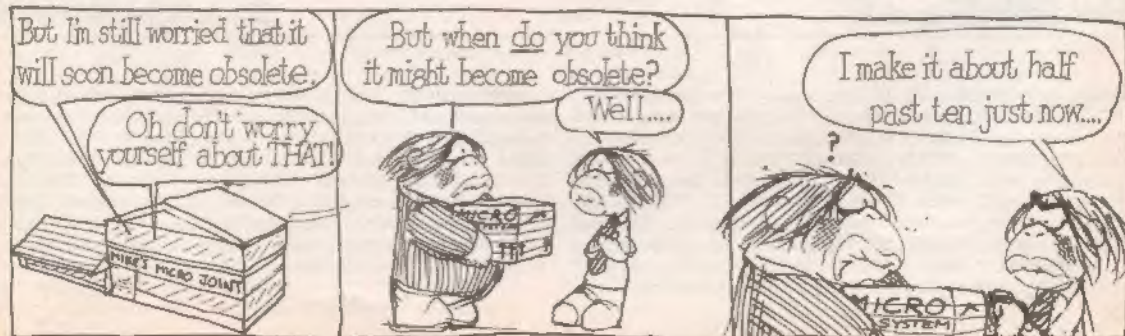
### Winner of Puzzle No 157

The winner is M. W. Peters, of Spetisbury, nr Blandford, Dorset, who receives £10.

### Rules

The closing date of Puzzle No 162 is July 10.

## The Hackers







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